“A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ON ATP III CRITERIA IN SCHOOL GOING CHILDREN”.

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT

FOR THE AWARD OF THE DEGREE OF

DOCTOR OF MEDICINE IN HOMOEOPATHY: M.D. (Hom.)

IN

PRACTICE OF MEDICINE

By

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UNDER THE GUIDANCE OF

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SUBMITTED TO

THE TAMILNADU Dr. MGR MEDICAL UNIVERSITY, CHENNAI

2019

ENDORSEMENT BY THE HEAD OF THE DEPARTMENT AND THE INSTITUTION

This is to certify that the Dissertation entitled **"A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ON ATP III CRITERIA IN SCHOOL GOING CHILDREN"** is a bonafide work carried out by **Dr.NITHIN.R.M,** a student of M.D.(Hom.) in **DEPARTMENT OF PRACTICE OF MEDICINE** in SARADA KRISHNA HOMOEOPATHIC MEDICAL COLLEGE under the supervision and guidance of **Dr.T.AJAYAN M.D.(Hom.), Prof.& Head, Department of Practice of Medicine** in partial fulfillment of the Regulations for the award of the Degree of **DOCTOR OF MEDICINE (HOMOEOPATHY)** in **PRACTICE OF MEDICINE.** This work confirms to the standards prescribed by THE TAMILNADU DR. MGR MEDICAL UNIVERSITY, CHENNAI.

This has not been submitted in full or part for the award of any degree or diploma from any University.

Dr. T.AJAYAN, M.D. (Hom.) **Dr.N.V.SUGATHAN, MD (Hom)**

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Place: Kulasekharam

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CERTIFICATE BY THE GUIDE

This is to certify that the Dissertation entitled **"A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ON ATP III CRITERIA IN SCHOOL GOING CHILDREN"** is a bonafidework of **Dr.NITHIN.R.M,** all his work has been carried out under my direct supervision and guidance. His approach to the subject has been sincere, scientific and analytic. This work is recommended for the award of degree of **DOCTOR OF MEDICINE (HOMOEOPATHY)** in **PRACTICE OF MEDICINE** of THE TAMILNADU DR.MGR MEDICAL UNIVERSITY, CHENNAI.

Place: Kulasekharam **Dr. T.AJAYAN, M.D(Hom)**

Date: Professor & Head,Dept. of Practice of Medicine

DECLARATION

I, **Dr. NITHIN.R.M.** do hereby declare that this Dissertation entitled **"A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ON ATP III CRITERIA IN SCHOOL GOING CHILDREN"**is a bonafide work carried out by me under the direct supervision and guidance of **Dr.T.AJAYAN, M.D(Hom.),** Prof. & Head, Dept. of Practice of Medicine, in partial fulfillment of the Regulations for the award of degree of **Doctor of Medicine(Homoeopathy)** in **PRACTICE OF MEDICINE** of The Tamil Nadu Dr. MGR Medical University, Chennai. This has not been submitted in full or part for the award of any degree or diploma from any University.

Place: Kulasekharam **Dr. NITHIN.R.M.**

Date:

ABSTRACT

Metabolic syndrome is a cluster of conditions that occur together, increasing your risk of heart disease, stroke and type 2 diabetes. These conditions include increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels.Most of the disorders associated with metabolic syndrome don't have obvious signs or symptoms. One sign that is visible is a large waist circumference. And if your blood sugar is high, you might notice the signs and symptoms of diabetes such as increased thirst and urination, fatigue, and blurred vision.Metabolic syndrome is closely linked to overweight or obesity and inactivity.It's also linked to a condition called insulin resistance.

METHODOLOGY:

A sample of 30 cases of metabolic syndrome among the school going children were collected from Sarada Krishna Homoeopathic Medical College OPD, IPD, RHC, and school health programme. Each case was taken in a detailed manner and recorded in SKHMC Standard case record format. Totality was erected after analysis and evaluation . Then repertorization is done and with reference to Materia Medica and Organon of medicine and signific constitutional remedy was given. And improved is noted in sum of scores before and after treatment.Student t test was applied for analysing the effectiveness of homoeopathic constitutional medicine in the management of metabolic syndrome.

RESULT

Result shows that most affected age group is 13 - 14 years and males are more affected than females.Out of 30 cases 20 cases have marked improvement, 9 cases have mild improvement and 1 case have no improvement.

CONCLUSION

The study shows that Homoeopathic constitutional treatment is effective in the management of metabolic syndrome and in the manegement of triglycerides.

KEY WORDS: Metabolic syndrome, Triglyceride, Constitutional Treatment

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Dr. NITHIN.R.M.

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LIST OF ABBREVIATIONS USED

SL. NO.	ABBREVIATION	EXPANSION
1.	%	Percentage
2.	<	Aggravation
3.	>	Amelioration
4.	=, A/F	Ailments from
5.	D	Dose
6.	Dr	Doctor
7.	F	Female
8.	M	Male
9.	SL NO.	Serial number
10	Ht	Height
11.	Wt.in Kg	Weight in kilogram
12.	W.C	Waist circumference
13.	BMI in kg/m^2	Body Mass Index in $kilogram/meter^2$

14.	FBS	Fasting Blood Sugar
15.	TGL	Triglyceride lipase
16.	HDL	High Desnsity Lipoprotein
17.	B.P in mmHg	Blood pressure in millimeter of mercury
18.	mg/dl	milligram/deciliter
19.	cm	centimeter
20.	IPD	In patient department
21.	SL	Saccharum Lactis
22.	§	Aphorism
23.	OPD	Outpatient department

LIST OF APPENDICIES

1.0 INTRODUCTION

Metabolic syndrome has been increasing in prevalence worldwide since at least the middle of the twentieth century. Its appears that this trend is continuing a pace into the new millennium. Metabolic syndrome is screened based on special diagnostic criteria[1]. Metabolic syndrome is a cluster of conditions that occur together, increasing the risk of heart disease, stroke and type 2 diabetes.These conditions include increased blood pressure, high blood sugar, excess body fat around the waist and abnormal cholesterol or triglyceride levels.The threat to health care system, health financing, individual health and well being in these two conditions represent in both developed and developing nations has been recently recognized in a United Nations resolution on diabetes. The causes of metabolic syndrome seem to be very tightly interconnected with the causes of type 2 diabetes, namely increased body weight , on the one hand, and insulin resistance on the other hand. It's estimated that about 25 percent of the population in the United States have the metabolic syndrome,either because of obesity or because of insulin resistance or both. And the majority of type 2 diabetic subjects have the metabolic syndrome as well. There is an urgent need to act now to improve the health of this generation as suggested in World health organisation (WHO)[2]. According to WHO definition Obesity or Overweight are defined as abnormal or excessive fat accumulation that presents a risk to health. Childhood obesity is the global phenomenon affecting all socio-economical groups[3]. After increasing steadily for decades, national childhood obesity rate has leveled off, but it is still alarmingly high compared to a few decades back[4].Several factors like psychological and environmental factors, decreased energy expenditure, dietary and genetic factor, life style habits, etc leads to obesity.According to Homoeopathic mode of treatment Constitution is defined as the

structural, composition, physical make up (or) nature of a person.[5]. Dyscrasia is defined as an abnormal or physiologically unbalanced state of the body. Constitutional dyscrasia is collectively known as unbalanced physical make up of a person. Usually this constitutional dyscrasia is one of the reasons for obesity. Obesity often tracks families[6]. In this constitutional dyscrasia, Homoeopathic medicines are the safest mode of medication for weight control.

Asian Indians exhibit unique feature of obesity; excess body fat, abdominal adiposity, increase subcutaneous and inter-abdominal fat, and deposition of fat in ectopic sites(liver,muscle,etc). Obesity is a major driver for the widely prevalent metabolic syndrome and type 2 Diabetes Mellitus (T2DM) in Asian Indians in India those residing in other countries. Based on percentage body fat and morbidity data, limits of normal BMI are are narrower and lower in Asian Indian than in white caucasians.In this consensus statement, we present revised guidelines for diagnosis of obesity , abnormal obesity, the metabolic syndrome , physical activity, and drug therapy and bariatric surgery for obesity in Asian Indians after consultations

It is estimated that by application of these guidelines, additional 10-15% of Indian population would be labeled as overweight/obese and would require appropriate management. Application of these guidelines on countrywide basis is also liked to have a deceleration effect on the escalating problem of the T2DM and cardiovascular disease. These guidelines could be revised in future as appropriate,after another large and countrywide consensus process. Till that time, those should be used by clinicians, researchers and policymakers dealing with obesity and related disease.[11]

NEED FOR THE STUDY:

Metabolic syndrome describes a cluster of risk factors that put kids on the road to heart disease and type 2 diabetes. Kids mainly have at least 3 of these risk factors of excessive abdomen fat, high blood pressure, abnormal levels of blood fats including cholesterol and triglycerides, hyperglycemia.

Recently the eating habits and life style of children has drastically changed from previous generation. Those factors leading to increased health problems obesity, hypertension, diabetes, etc.among the children itself.

In this era ,Life style disorders are very common due to varied food habits and reduced exercise.Mainly children are the victims. So this study is essential for betterment of the upcoming generation. From the root itself we have to prevent the manifestations of disease.

So it is necessary to study the prevalence of metabolic syndrome among children and its early diagnosis and its management.keeping all these points in view the present study is undertaken.

2.0 AIM AND OBJECTIVES

1. To know the effect of Homoeopathic constitutional remedies in treating metabolic syndrome.
2. To understand the management of triglycerides level with Homoeopathic medicine.

3.0 REVIEW OF LITERATURE

3.1 METABOLIC SYNDROME

3.1.1Synonyms of metabolic syndrome-Syndrome X: Insulin Resistance Syndrome[7].

3.1.2 Definition:

The metabolic syndrome consists of a constellation of metabolic abnormalities that confer increase risk of cardiovascular disease (CVD) and diabetes mellitus (DM). The criteria for the metabolic syndrome evolved since the original definition by the World Health Organisation in 1998, reflecting growing clinical evidence and analysis by a variety of consensus conferences and professional organisations. The major features of the metabolic syndrome include central obesity, hypertriglyceridemia, low HDL. Cholesterol, hyperglycemia and hypertension.[8]

3.1.3 Epidemiology:

Data from the World Health Organisation suggests 65% of the world's population live in countries where overweight and obesity kills more people than underweight children those who remain obese as adult have significant risk of affecting metabolic syndrome[9]. The International Diabetic Federation reports that as of 2011,366million people suffer from diabetes,80% people with diabetes living in developing countries and in 2011, diabetes caused 4.6million deaths and approximately 78000 children were diagnosed with type 1 diabetes. The prevalence of metabolic syndrome among children seems to vary with age ,sex and weight according to national health and nutritional survey (NHANES) for 1999 to 2002. In NHANES lll, a prevalence rate of 4.2% in children and adolescents aged 12 to 19 years and Bogalusa Heart study found a prevalence of 3.6% in youths aged 8 to 17

years[10]. Obese children with microalbuminuria had a significantly higher blood pressure, triglyceride level, LDL levels, as well as higher prevalence of Met.S, insulin resistance, and impaired fasting glucose levels, than those without microalbuminuria[12].

3.1.4 AETIOLOGY:

- Insulin resistance
- Increased waist circumference
- Dyslipidemia
- Glucose intolerance
- Hypertension
- Proinflammatory cytokines[8]

3.1.5 RISK FACTORS:

- Central obesity, or excess fat around the middle and upper part of the body.
- Sedentary life:Many components of metabolic syndrome are associated with sedentary life, including increased adipose tissue, reduced HDL cholestrol and trend towards increased triglycerides, blood pressure and glucose.[8]

There are other factors that can increase your risk for metabolic syndrome. These include:

- Age
- Family history of metabolic syndrome
- Lack of exercise
- Those with polycystic ovary syndrome[13]

3.1.6 PATHOLOGY (PATHOGENESIS):

Insulin resistance is characterized by a high plasma insulin concentration that fails to suppress plasma glucose normally. A central features is unresponsiveness to insulin at the cellular level because of changes in receptor binding or post receptor mechanisms. Exposure to high free fatty acid is a common mediator. Insulin sensitivity is measured by various means. A sample clinical method relates to fasting glucose to insulin concentration, using a mathematical formula known as HOMA-IR (homeostasis model assessment for insulin resistance). Insulin resistance is closely related to impaired glucose intolerance, diabetes and risk of heart disease.[14]

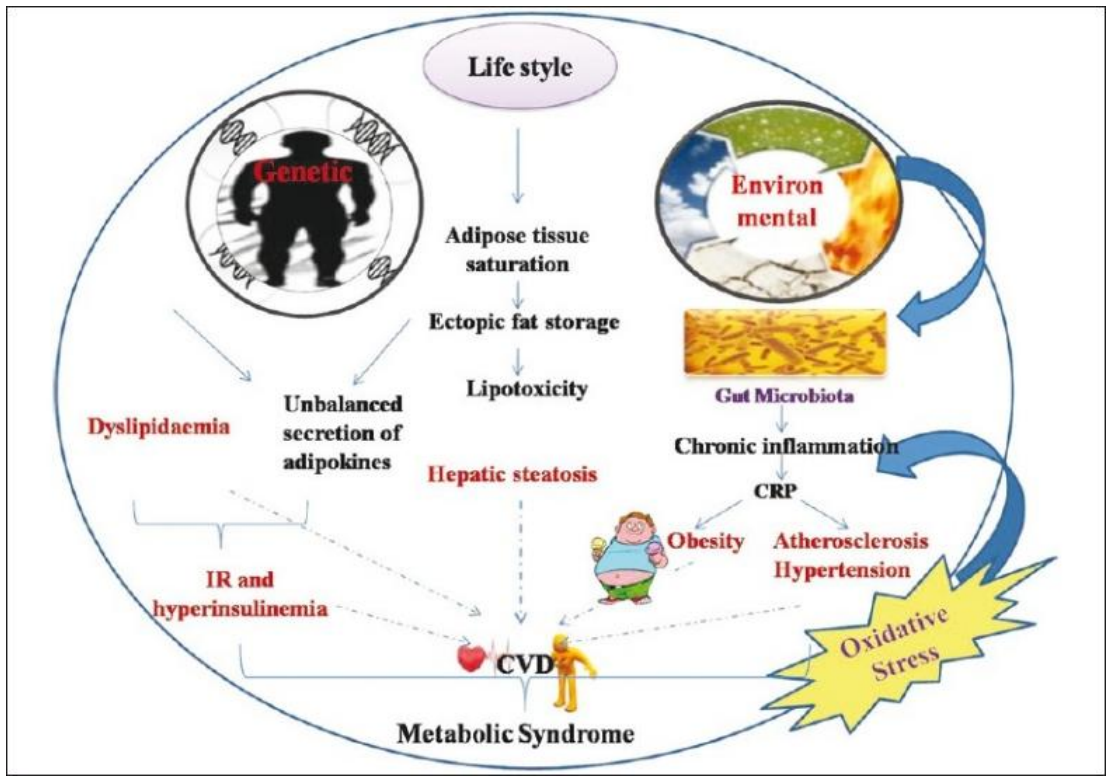

Figure No.1

3.1.7 CLINICAL FEATURES:

- Abdominal obesity elevated triglyceride level
- Elevated triglyceride level
- Reduced HDL cholesterol level
- Elevated blood pressure
- Elevated fasting glucose level

3.1.8 ASSOCIATE RISKS:

- Fatty liver
- Hyperuricemia
- Microalbuminuria
- Polycystic ovarien syndrome
- Arteriosclerosis[1]

3.1.9 PHYSICAL EXAMINATION:

Finding at physical examination may include the following:

- Body mass index (BMI) and waist measurement
- Blood pressure
- Blood tests including

  Lipid profile

  Fasting glucose[15].

3.1.10 DIAGNOSIS CRITERIA:

The criteria to identify this syndrome are by the present of three or more of these risk factors

- Impaired fasting plasma glucose (FPG)≥ 100 mg/DL.
- Obesity with the waist circumference≥90TH percentile.[16]
- Plasma triglycerides> 150 mg/dl

- HDL cholesterol>40mg/dl in men and > 50 mg/DL in women
- Blood pressure≥130/85 mm hg

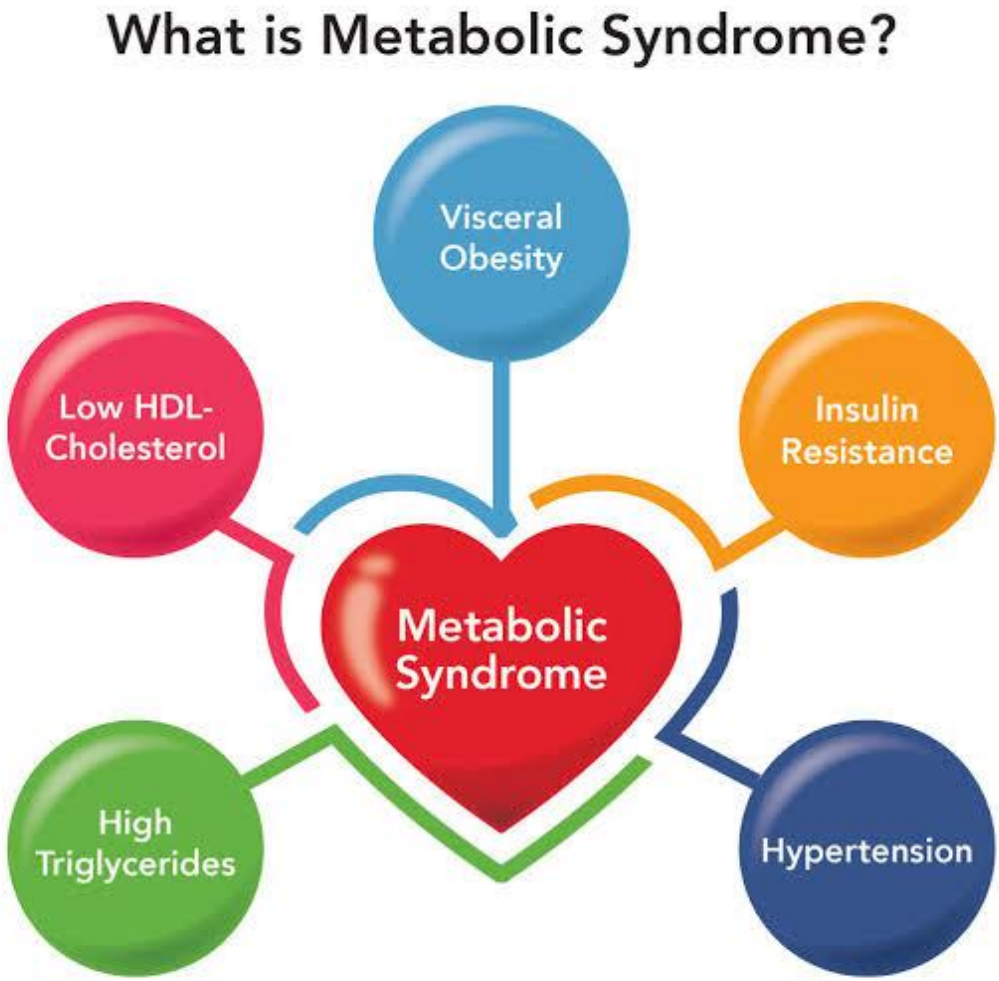

Figure No.2

NCEP:ATPlll criteria for metabolic syndrome

Three or more of the following

- Central obesity- waist circumference≥90th percentile (age & sex specific)
- Hyperglyceridemia - triglycerides > 150 mg/DL(F), Bor specific
- Low HDL cholesterol-<40 mg/dl(M) and <50 mg/dl (F), or specific medication
- Hypertension- blood pressure->130/85 mmHg or specific medication

- Fasting plasma glucose>100mg/dl or specific medication or previously diagnosed type 2 diabetes

NCEP- National cholesterol Education program,

ATPlll - Adult treatment panel lll

HDL- High Density Lipoprotein[17]

3.1.11 COMPLICATIONS:

The complications that may result from metabolic syndrome are frequently serious and long term (chronic). They inclue:

- Atherosclerosis
- Diabetes mellitus
- Heart attack
- Stroke
- Non alcoholic fatty liver
- Peripheral artery disease
- Cardiovascular diseases

If diabetes develops, you may be at risk for additional health complications, including:

- Diabetic reinopathy
- Diabetic neuropathy
- Diabetic nephropathy[13]

3.1.12 MANAGEMENT:

- Life style changes to reduce risks and maintain healthy weight and body fat distribution
- Minimize physical inactivity
- Daily moderate exercise at least 30 minutes/day
- Dietary control[14]
- Eat healthy diet with lots of fruits and vegetables,lean protein,whole grains, and low fat diary
- Schedule regular checkup with doctor.[18]

3.1.13 HOMOEOPATHIC PHILOSOPHY:

Hahnemann in his organon of medicine in **aphorism 5**

Useful to the physician in assisting him to cure are the particulars of the most probable exciting cause of the acute disease as also the most significant points in the whole histoy of the chronic disease, to enable him to discover its fundamental causes, which is generaly due to chronic miasm. In these investigations, the ascertainable physical constitution of the patient(especially when the disease is chronic), his moral and intellectual character, his occupation, mode of living and habits, his social and domestic relations, his age, sexual function,&c, are to be taken in consideration.[19]

Aphorism 77

Those diseases are inappropriately named chronic, which persons incur who expose themselves continually to avoidable noxious influences, who are in the habit of indulging in injurious liquors or aliments, are addicted to dissipation of many kinds which undermine the health, who reside in unhealthy localities, especially marshy districts, who are housed in cellars or other confined dwellings, who are deprived of exercise or of open air, who ruin their health by over exertion of body or mind, who

live in a constant state of worry, etc. There states of ill-health, which persons bring upon themselves,disappear spontaneously, provided no chronic miasm lurks in the body, under an improved mode of living,and they cannot be called chronic disease.

Dr.M.L Dhawale says that understanding a human being and what ails his will ever remain the most difficult task confornting the physician. We have learnt that the remedy will be known to us through the individual features of the case as against the group features that enable us to diagnosis the clinical condition. Our chief concern during case receiving, therefore, will be to bring out this individual afflicted[20].

Constitution can be define as the "the genotypic inheritance of an individual, the physical make up of his body, including its functional ability, metabolic activity, reaction to stimuli and resistance to infection."during the process of remedy selection, a homeopath tries to individualise the patient based on his physical built, his morality, characters or tendencies from his parents and some tendencies he acquires from his surroundings that constantly influences him. So constitution is the aggregate of the external and internal characters of an individual. In homoeopathy, the nature of the patient is judged by his temperament, heredity, predisposition,miasms and constitutional diathesis and the the present condition of body mind. The method of constitutional treatment in unique to homoeopathy. It is believed that the constitutional medicine can correct the inherent and acquired defects in the personality. Well selected deep acting homoeopathic remedy is equal to the constitutional remedy.[21]

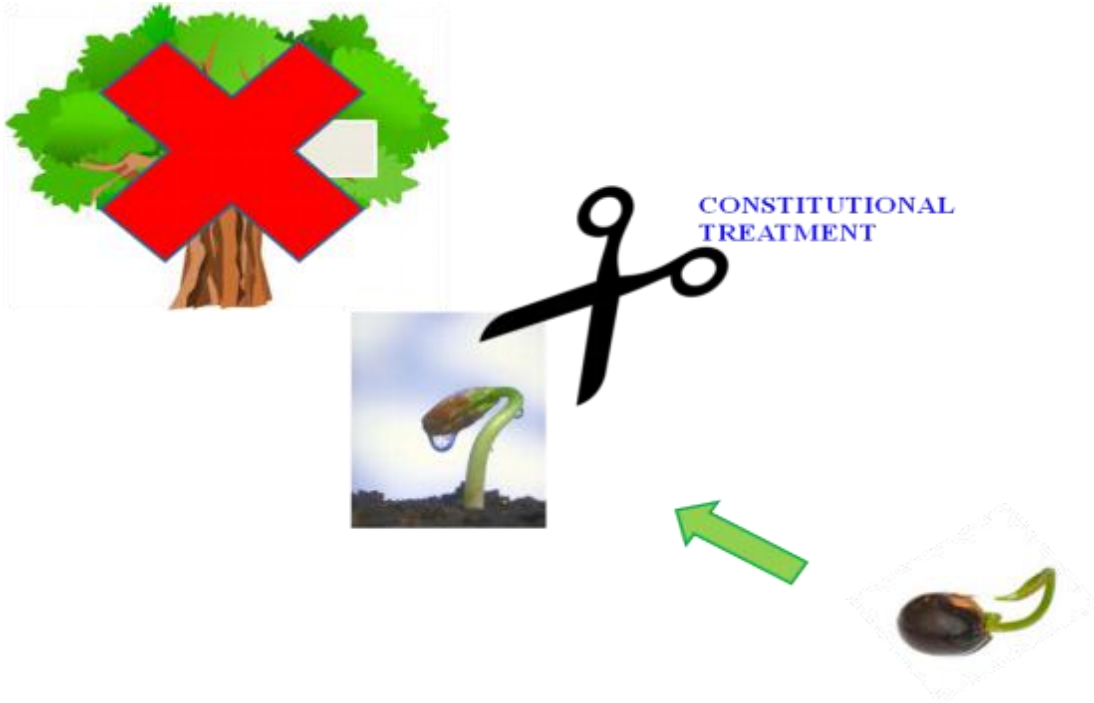

Figure No.3

3.1.14 HOMOEOPATHIC THERAPEUTICS:

1. **CALCAREA CARBONICA:**

- A constitutional remedy for reducing fat.Great anti psoric remedy with increased general and local perspiration and swelling of glands, scrofulous and rachitic condition.
- Tendency to obesity in youth, psoric constitutions,pale weak, easily tired when walking
- Girls who are fleshy, plethoric, and grow too rapidly[22]
- Craving for eggs is marked with heat as well as coldness of single part of the body
- Children who grow fat, are large bellied, with large heads. Fat, fair, flabby and perspiring and cold, damp and sour.
- Aversion to work or exertion[23]

2.FERRUM METALLICUM -

- Obesity with anaemia,face puffy with pitting of flesh,
- Best adapted to young weakly persons,anaemic and chlorotic with pseudo plethoric,who flush easily and have cold extremities, suffer from weakness even on speaking,pallor of skin,mucus membrane[23]
- Quarrelsome, disputive, easily excited, least contradiction angers, irritability
- Leaves the table suddenly and with one efforts vomits everything eaten, can sit down and eat again.
- Always feel better by walking slowly.[24]

3.PULSATILLA PRATENSIS

- Adapted to persons of indecisive, slow, phlegmatic temparament.
- Sandy hair, blue eyes[24],fair, pale face, easily move to laughter or tears, affectionate, mild, gentle, timid and yielding disposition, weeps easily.
- Children like fuss and caresses
- Abdominal colic with chilliness.[23]

4.ANTIMONIUM CRUDUM

- Obesity with excessive irritability and fretfulness
- Thickly coated white tongue
- Tendency to grow fat
- Longing for pickles and acids,worse after eating,cold baths,better after warm bath.[22]

5.BARYTA CARBONICA

- Scrofulous children, especially are backward mentally and physically
- Swollen abdomen, take cold easily, always have swollen tonsils.
- Lack of confidence, aversion to strangers.

- Late learning to walk, even with pretty good limbs.[25]
- They dislike bathing, they often get night terrors
- You cannot hold their attention for long
- Inattentive and forgets easily.[26]

3.1.15 PREVIOUS STUDIES ON METABOLIC SYNDROME IN CHILDREN:

- The prevalence of the metabolic syndrome is high among obese children adolescents, and it increases with worsening obesity. Biomarkers an increased risk of adverse cardiovascular outcomes are already present in these youngsters.[27]
- A study of 150 obese children by Sanad M *et al.* found that In the study which followed REGODCI definition steps, the proportion of the metabolic syndrome among lean (21.3%) and obese (26.1%) children and adolescents was similar. This lends support to the REGODCI definition being equal successful in screening for the metabolic syndrome in lean and obese children and adolescents and provides an opportunity to establish an early diagnosis in lean population[28].
- A study on the prevalence of metabolic syndrome in 8-18 years old school going children of Srinagar city of Kashmir, India was done. In this sectional study 758 respondents in 8-18 years of age were randomly selected using random sampling method. The prevalence of metabolic syndrome was 3.8% (boys-3.9%, girls-3.8%) and the prevalence of obesity was 9.9% (boys-9.9%, girls-10.6%) among the studied children. Obese subjects had the highest proportion of metabolic syndrome compared with those at risk for overweight and those with normal weight. From the study the conclusion obtained was metabolic syndrome is prevalent even in young children. So the study suggest screening programs for

children aged 8-18 years to control obesity and metabolic syndrome in the developing world.[29]

- A study on prevalence of the metabolic syndrome among North Indian adolescents using Adult Treatment Panel III was done. Childhood obesity is an important risk factors for the development of metabolic syndrome in children and adolescent. Because of high prevalence of insulin resistance and metabolic syndrome in Indian adult population, studies are needed to identify the prevalence of those metabolic abnormalities in adolescent population.The aim of the study was to estimate the prevalence of metabolic syndrome using pediatric international diabetic federation definition and compare it with estimates of adult treatment panel lll definition among adolescents in northern India.A total of 899 adolescents attending school (aged 10-18 years) participated in this population-based prospective study. All the clinic and biochemical assessment was done after proper consent. The metabolic syndrome was determined by the national cholesterol education program adult treatment panel lll definition modified for age and pediatric international diabetic federation definition.The prevalence of metabolic syndrome was 3.5% according to adult treatment panel lll criteria and 1.5% based on international diabetic federation criteria. No significant gender difference was the most common and abdominal obesity the least common constituent of metabolic syndrome[30].
- Several epidemiological studies clearly demonstrated that obesity increases the risk of kidney disease. We have attempted to evaluate the association of obesity with albuminuria , an easly marker of kidney disease, among obese children and its relation to metabolic syndrome. This study included 150 obese children. Blood pressure, fasting blood glucose, plasma insulin and the lipid profile were

assessed. The homeostasis model assessment of insulin resistance(HOMA-IR) was used to calculate *in-vivo* insulin resistance. Urinary albumin and creatinine were estimated. Microalbuminuria was detected in 22 of 150 obese children waist circumference, blood pressure, triglyceride, low-density lipoprotein (LDL).insulin resistance and fasting blood glucose were significantly higher in obese children with microalbuminuria than in those with normal albuminuria and showed significant positive correlations with microalbuminuria. High-density lipoprotein (HDL) was significantly lower in obese children with microalbuminuria than in those with normal albuminuria and showed significant positive correlations with microalbuminuria. We found that body mass index , abdominal obesity,hypertension, impaired fasting glucose level and insulin resistance significancy increased the odds of microalbuminuia in the obese child enrolled in this study. Moreover, high triglyceride, high LDL and low HDL were significantly associated with microalbuminuria. In our patient group, childhood obesity was a risk factor for the development of microalbuminuria, which in turn was significantly associated with metabolic syndrome and its different constituents.[31]

- To determine the prevalence of the metabolic syndrome at baseline in the Diabetes Prevention Program and the effect of intensive lifestyle intervention and metformin therapy on the syndrome's incidence and resolution. Fifty-three percent of participants had the metabolic syndrome at baseline; incidence did not vary substantially by age. However, low levels of high-density lipoprotein cholesterol predominated in younger participants (age 25 to 44 years), and high blood pressure predominated in older participants (age 60 to 82 years). In life-table analyses (log-rank test), incidence of the metabolic syndrome was

- reduced by 41% in the lifestyle group (P< 0.001) and by 17% in the metformin group (P 0.03) compared with placebo. Three-year cumulative incidences were 51%, 45%, and 34% in the placebo, metformin, and lifestyle groups, respectively. There was no significant heterogeneity by ethnic group.[32]

- Scientific groups agreed that CardioVascular Disease (CVD) is the primary clinical outcome of metabolic syndrome. Additionally, risk for type 2 diabetes is higher, and diabetes is a major risk factor for CVD. ATP III criteria provide a practical tool to identify patients at increased risk for CVD. WHO and AACE criteria require further oral glucose testing if IFG and diabetes are absent. IGT on OGTT denotes greater risk for diabetes than does metabolic syndrome without elevated fasting glucose. Several potential benefits make OGTT in such patients an attractive option for use at the discretion of the physician. First, in the absence of IFG, IGT could count as one metabolic risk factor defining metabolic syndrome, besides carrying increased risk for type 2 diabetes. Moreover, postprandial hyperglycemia in a patient with IFG denotes diabetes, a high-risk condition for CVD.Regardless of diagnostic criteria used, there is full agreement that therapeutic lifestyle change, with emphasis on weight reduction, constitutes first-line therapy for metabolic syndrome. Drug treatment to directly reduce insulin resistance is promising, but clinical trials to prove reduction of CVD are lacking. In patients in whom lifestyle changes fail to reverse metabolic risk factors, consideration should be given to treating specific abnormalities in these risk factors with drugs. Use of drugs to target risk factors should be in accord with current treatment guidelines.[33]

- The observational study was conducted at the Vydehi Institute of Medical Sciences and Research Centre, Bangalore. Total 100 children who were overweight and obese were participated. The outcome measure of the study was considered as metabolic syndrome. In patients above 6 years who are overweight and obese, a detailed history including antenatal history, birth weight, diet history, personal history was taken. In these patient's demographic details, anthropometric measurements weight, height, BMI, waist circumference, waist hip ratio and blood pressure were recorded. FBS, triglyceride and HDL were also done.Out of 100 children studied, 61% were overweight and 39% were obese. Males were 52% and females were 48%. 92 were AGA, 6 were SGA and 2 were LGA .92% had normal FBS and 8% had high levels of FBS .85% had normal TGL and 15% more than 150mg/dl. 69% had HDL-C less than 40 mg/dl and 31% had HDL-C more than or equal to 40mg/dl. Out of 8 cases of MS, 3 had abnormal FBS and HDL-C, 2 cases had abnormal TGL and HDL-C, and 3 cases abnormal FBS, TGL and HDL-C. In the remaining 92 cases, only one metabolic abnormality was noticed in 73 cases (abnormal FBS- 2, abnormal TGL-10 and abnormal HDL-C in 61) and in remaining 19 cases none of the risk factors for MS were detected.By identifying these risk factors early in overweight and obese children, we can identify metabolic syndrome early and initiate necessary treatment and prevent the complications of Metabolic syndrome.[34]

4.0 MATERIALS AND METHOD

4.1 STUDY SETTINGS

A sample of 30 cases were taken from the children with metabolic syndrome from Sarada Krishna Homoeopathic Medical College OPD,IPD and from School health programme based on inclusion criteria for homoeopathic treatment will be assigned in the study.

4.2 SELECTION OF SAMPLES

- Sample size-30 cases
- Sampling technique- multistage sampling

4.3 METHODOLOGY:

A sample of 30 cases of metabolic syndrome among the school going children were collected from Sarada Krishna Homoeopathic Medical College OPD, IPD, RHC, and school health programme. Each case was taken in a detailed manner and recorded in SKHMC Standard case record format. Totality was erected after analysis and evaluation . Then repertorization is done and with reference to Materia Medica and Organon of medicine and signific constitutional remedy was given. And improved is noted in sum of scores before and after treatment.Student t test was applied for analysing the effectiveness of homoeopathic constitutional medicine in the management of metabolic syndrome.

Assessment of improvement:A scoring pattern was followed to analyze the sum total of improvement of all 5 criteria contributing metabolic syndrome.

4.4 INCLUSION CRITERIA:

- Age group between 8 yrs-18yrs.
- Both sexes.
- Confirmed cases of metabolic syndrome.

4.5 EXCLUSION CRITERIA:

- Patients below 8yrs and above 18 yrs of age .
- Patients suffering from other server systematic disease.

4.6 STUDY DESIGN:

- A study on management of metabolic syndrome among school going children to evaluate the action of Homoeopathic medical medicine on metabolic syndrome.
- To study clinical presentation of metabolic syndrome and it's improvement after taking Homoeopathic constitutional medicine
- The study was carried out in OPD,IPD, RHC, and school health programme.
- The data was collected based on pre-structured case record format of Sarada Krishna Homoeopathic Medical College.
- Every case followed for 10-12 months based on ATP III criteria.

4.7 INTERVENTION:

The assessment for intervention was done twice monthly and constitutional medicines was given based on detailed case taking.

4.8 SELECTION OF TOOLS:

- Anthropometric measures of waist circumference, height and weight
- Synthesis 9.1
- FBS on GOD/PAP method, triglycerides on GPO/PAP method and HDL on two point method.

4.9 BRIEF OF PROCEDURES:

- Case taking and recording of problems in standardized case record format.
- Analysis and evaluation and medicine selection.

4.10 OUTCOME ASSESSMENT:

The assessment of BMI, triglycerides, HDL, waist circumference, BP and FBS before and after the study.

4.11 DATA COLLECTION

- By interview technique and observation (case study, anthropometric data , investigation)
- Recording was done in pre structured case format.

4.12 STATISTICAL TECHNIQUES & DATA ANALYSIS:

A regression study was carried out by using BMI vs triglycerides, FBS and HDL . The effectiveness of treatment will be statistically tested by student's t test.

5.0 OBSERVATION AND RESULTS

A sample of 30 cases from the patients who attended Sarada Krishna Homoeopathic Medical College OPD and school health programme was taken for this study.From the data obtained, the results are presented in the following tables.

Table. 1. DISTRIBUTION OF CASES ACCORDING TO AGE & SEX

Sl. No	Age Group	Male	Female	Total
1	8yrs - 10yrs	4	5	9
2	11yrs - 12yrs	6	1	7
3	13yrs - 14yrs	8	3	11
4	15yrs - 16yrs	1	0	1
5	17yrs - 18yrs	1	1	2

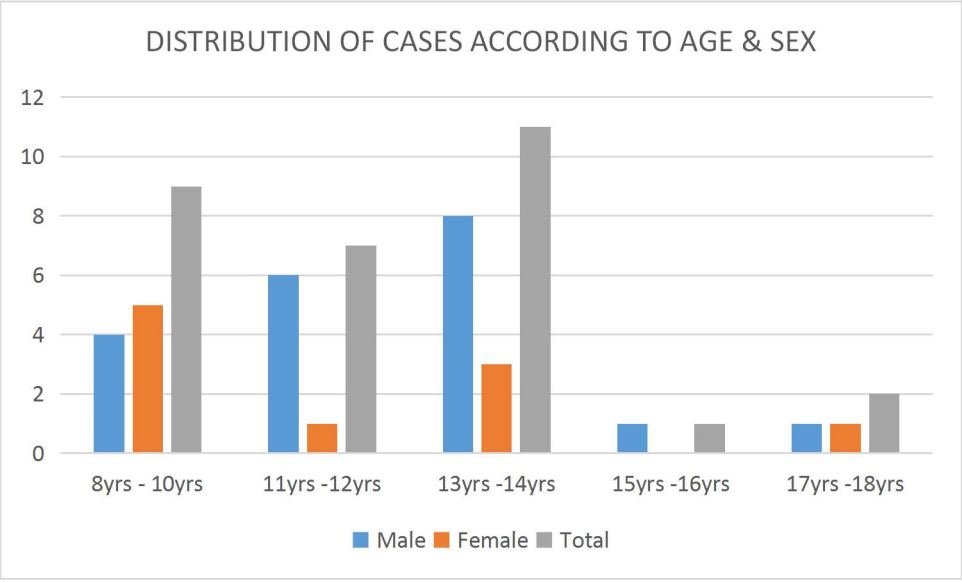

Figure No.4

The age sample varies from 8 - 18 years.Among this the maximum number of 11 patients in13 - 14 age group.Next frequency is seen in 8 - 10 years age group.The

minimum number of patients seen in age group of 15 - 16 and that is only 1 patient.Out of 30 patients only 10 are females and the remaining 20 are males.In that 20 males most patients are in the age group of 13 - 14.They are 8 in number.

Table. 2.COMPARISON OF HDL & TGL BEFORE AND AFTER TREATMENT

SL.NO	HDL		TGL	
	BEFORE	AFTER	BEFORE	AFTER
1	46	46	151	149
2	39	42	140	135
3	42	46	151	110
4	38	39	125	110
5	58	64	151	130
6	48	50	155	134
7	38	44	135	120
8	50	51	151	120
9	52	54	151	120
10	44	45	154	152
11	39	46	145	110
12	60	60	152	125
13	36	36	146	135
14	49	46	150	135
15	53	53	150	110
16	60	64	153	138
17	39	39	145	120
18	48	48	153	150
19	55	58	152	138
20	38	38	124	123
21	58	54	151	130
22	38	38	142	110
23	56	56	124	120
24	39	40	130	130
25	44	48	151	140
26	37	39	109	108
27	58	54	130	125
28	60	63	153	143
29	54	54	111	112
30	39	40	145	132

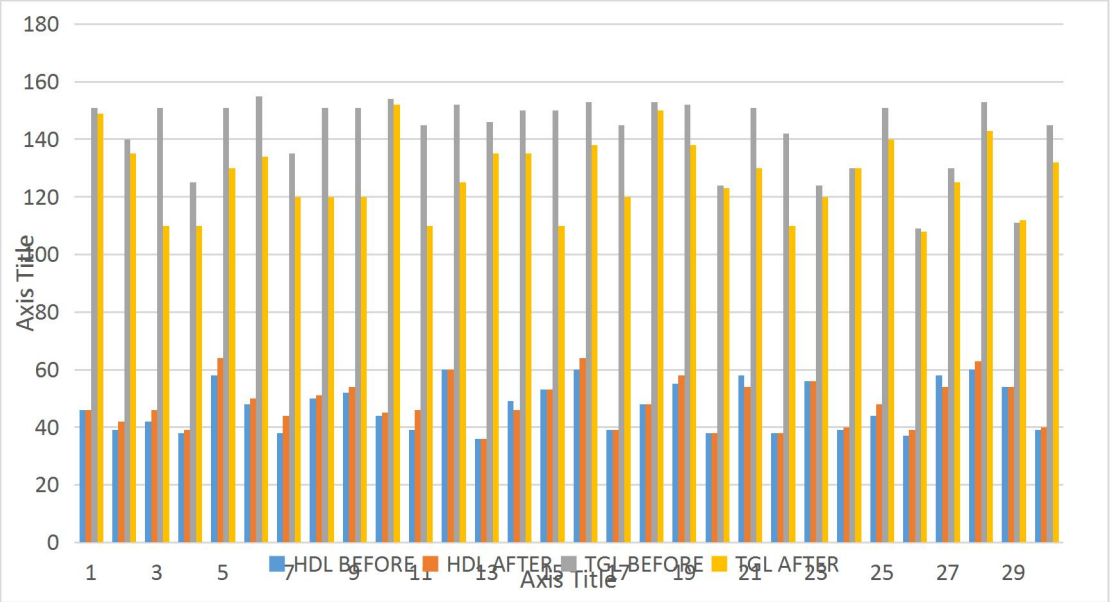

Figure No.5

Among the 30 cases, 16 cases had a slight increase in their triglyceride and after the treatment they become normal.In the case of HDL also there is improvement.Before the treatment 11 had HDL below 40 and after the treatment only 6 have abnormal HDL level.

Table. 3.COMPARISON OF BMI BEFORE AND AFTER TREATMENT

SL. NO.	BMI	
	BEFORE	AFTER
1	26.3	26
2	26.3	23
3	27.1	22.4
4	27.4	21.9
5	27	22.6
6	26.6	17.9
7	29.5	26.4
8	26.3	20.5
9	26	22.8
10	28.1	27.6
11	25	22.3
12	25	21.4
13	29.6	26.3
14	29.5	26.5
15	26.6	22.8
16	27.4	26.9

17	29.6	26.3
18	20	20.6
19	28.1	23.6
20	26	26
21	25.1	23
22	28	23.5
23	26.8	27.1
24	27.9	27.7
25	29.4	28.9
26	27.6	27.6
27	30.7	30.2
28	28.7	28.7
29	26.2	26
30	26.6	26.2

Out of 30 cases 24 cases shows improvement in their BMI value and

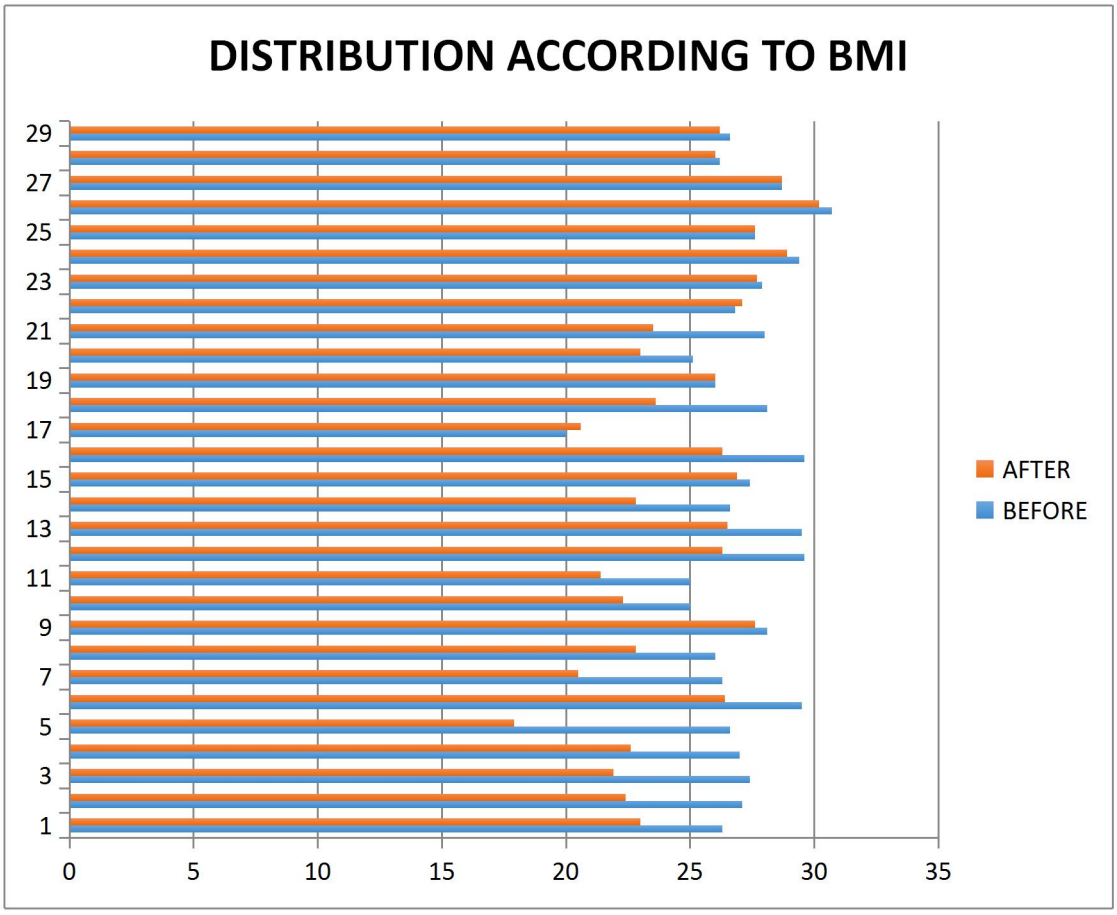

Figure No.6

Among the 30 cases, 14 cases came to normal and 3 cases have no increase or decrease in BMI.After the treatment 16 cases have BMI above 25 but they too have slight improvement.

Table.4.COMPARISON OF FBS BEFORE AND AFTER TREATMENT

SL.NO.	FBS	
	BEFORE	AFTER
1	338	281
2	135	81
3	125	100
4	115	95
5	130	100
6	120	100
7	115	95
8	128	100
9	125	98
10	90	76
11	125	100
12	120	100
13	130	120
14	132	100
15	130	99
16	104	100
17	130	110
18	359	345
19	130	100
20	110	103
21	120	100
22	130	100
23	108	95
24	103	92
25	101	101
26	105	99
27	102	105
28	104	101
29	128	120
30	130	128

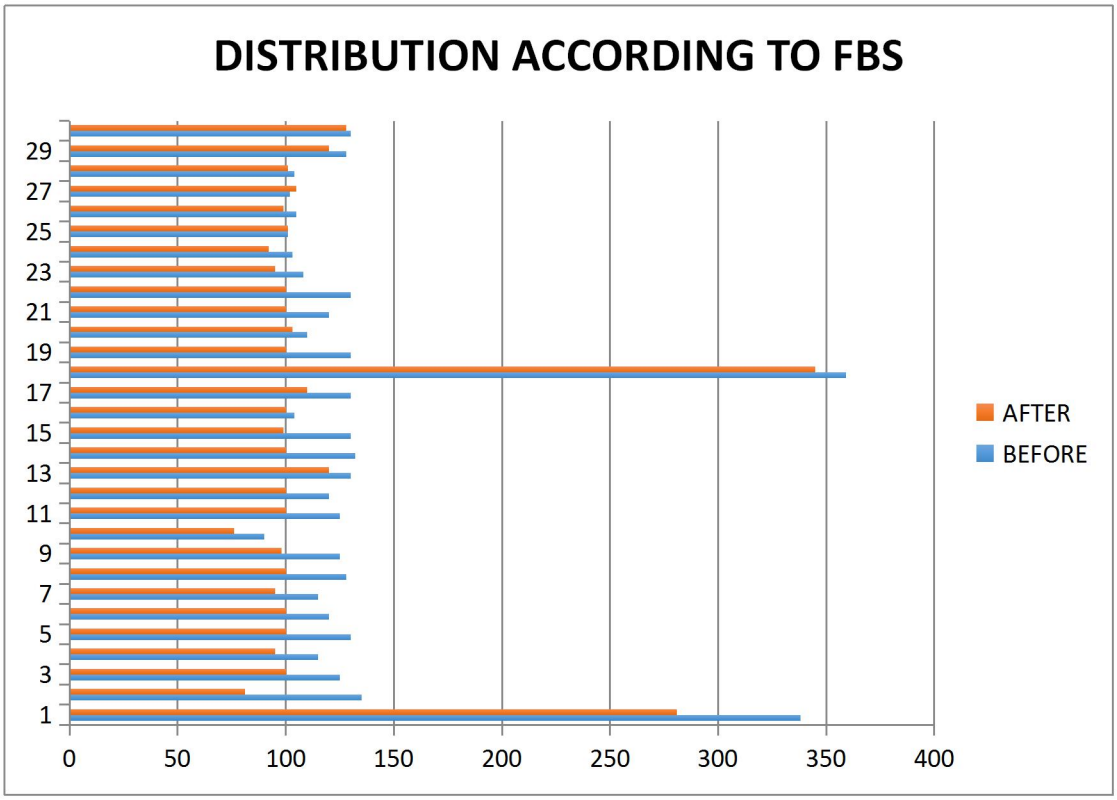

Figure No.7

Among the 30 cases 2 cases had a marked FBS of above 300 and all others had FBS below 135.Before the 29 cases had FBS above the normal value and after treatment only 10 have FBS and they too have improvement.

Table.5.COMPARISON OF BP BEFORE AND AFTER TREATMENT

SL.NO.	B.P	
	BEFORE	AFTER
1	124/72	118/80
2	118/68	110/72
3	120/70	106/74
4	114/76	114/76
5	116/68	116/68
6	122/72	120/72
7	116/70	116/70
8	110/74	112/74
9	102/78	114/70
10	138/ 98	120/80
11	110/80	110/80
12	108/76	108/76
13	92/64	102/74
14	132/86	124/78

15	134/86	114/70
16	102/72	106/70
17	96/70	96/70
18	136/90	132/86
19	112/68	120/78
20	106/70	116/70
21	110/76	110/76
22	116/74	118/72
23	138/92	130/80
24	110/68	110/72
25	108/78	108/78
26	98/70	100/70
27	136/88	130/78
28	110/70	106/70
29	132/90	130/84
30	100/68	104/72

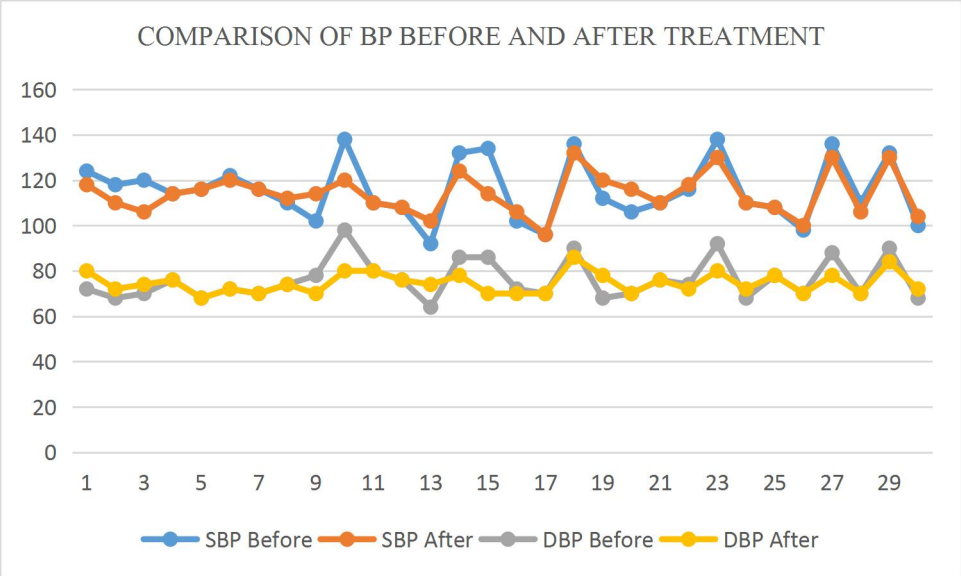

Figure No.8

Among the 30 cases BP is normal to 23 cases and only 7 cases had a slight elevation of BP was present.But after treatment only 5 have BP.

Table.6.DISTRIBUTION OF CASE ACCORDING TO WAIST CIRCUMFERENCE

SL.NO.	WAIST CIRCUMFERENCE	BEFORE	AFTER
1	1 - 20	0	0
2	21 - 40	0	0
3	41 - 60	3	13
4	61 - 80	26	16
5	81 - 100	1	1

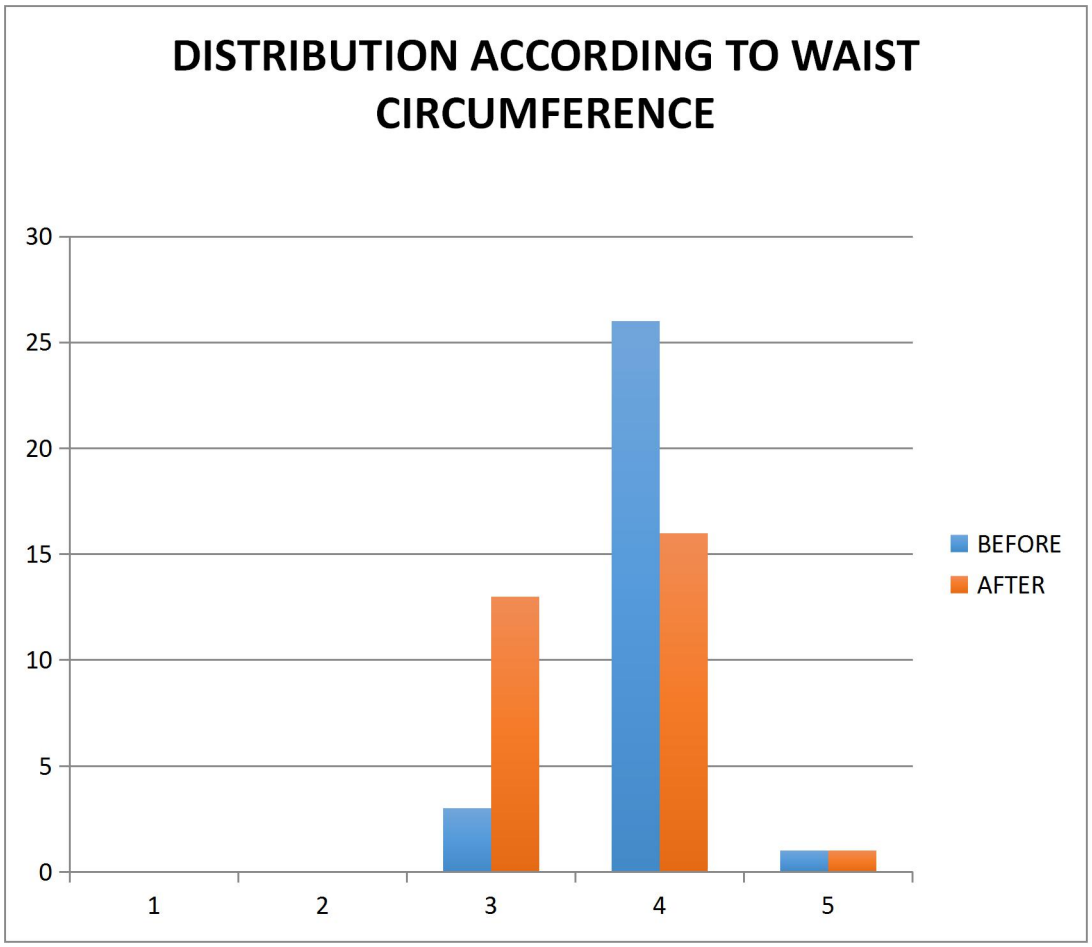

Figure No.9

Among the 30 cases 26 cases came under the waist circumference of 61 to 80cm but after the treatment the it reduced to 16 in that age group.

Table.7.DISTRIBUTION OF CASES ACCORDING TO MEDICINE GIVEN

Sl. No	MEDICINES	No of Cases
1	CALCAREA CARB	18
2	FERRUM MET	2
3	PULSATILLA	3
4	SILICEA	2
5	BARYTA CARB	1
6	ANTIMONIUM CRUDE	4

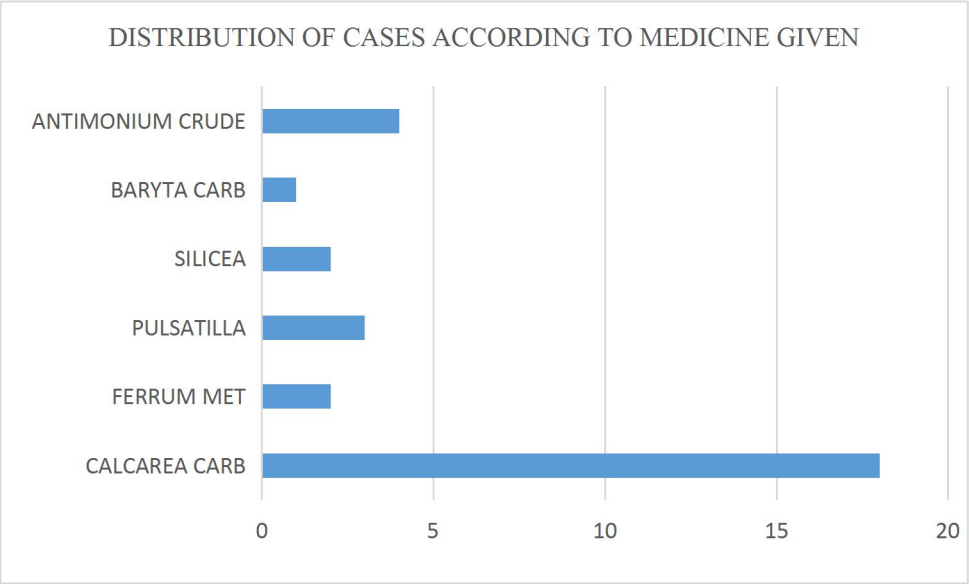

Figure No.10

Among the 30 cases Calcarea carb was given to 18 cases followed by Antimonium crudum for 4 cases Pulsatilla for 3 cases,Silicea and Ferrum met for 2 cases each and Baryta carb for 1 case.

Table.8.DISTRIBUTION OF CASES ACCORDING TO POTENCY

SL.No	POTENCY	No of Cases
1	30C	1
2	200	25
3	1M	2
4	0/1	2

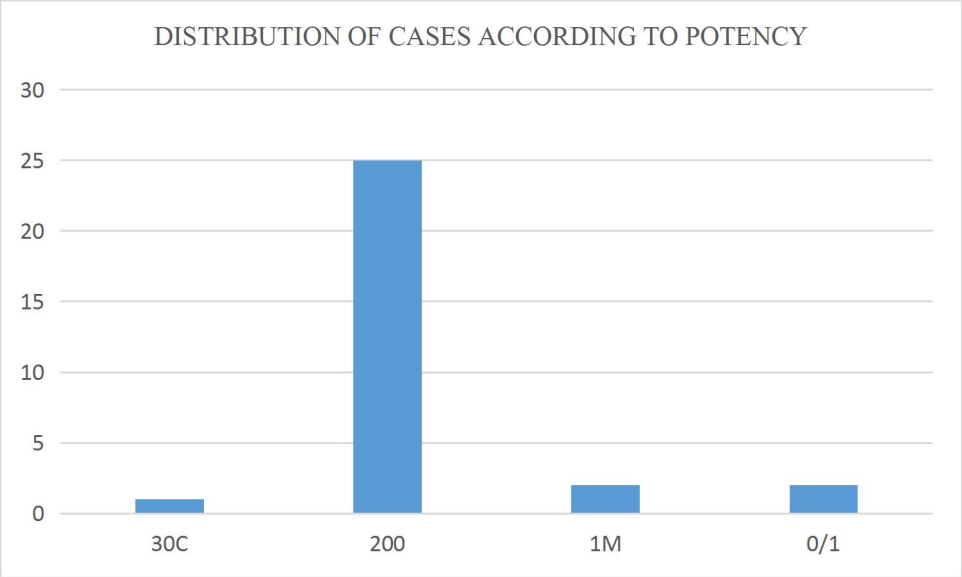

Figure No.11

Among the 30 cases 200 th potency was given to 25 cases followed by 1M potency and 0/1 potency for 2 cases and 30 potency for 1 case.

5.1 STATISTICAL ANALYSIS

Table.9. Hypothesis testing for Triglyceride levels

SL.NO	X	Y	d=X-Y	$d-\bar{d}$	$(d-\bar{d})^2$
1	151	149	2	-13.53	183.0609
2	140	135	5	-10.53	110.8809
3	151	110	41	25.47	648.7209
4	125	110	15	-0.53	0.2809
5	151	130	21	5.47	29.9209
6	155	134	21	5.47	29.9209
7	135	120	15	-0.53	0.2809
8	151	120	31	15.47	239.3209
9	151	120	31	15.47	239.3209
10	154	152	2	-13.53	183.0609
11	145	110	35	19.47	379.0809
12	152	125	27	11.47	131.5609
13	146	135	11	-4.53	20.5209
14	150	135	15	-0.53	0.2809
15	150	110	40	24.47	598.7809
16	153	138	15	-0.53	0.2809
17	145	120	25	9.47	89.6809
18	153	150	3	-12.53	157.0009
19	152	138	14	-1.53	2.3409
20	124	123	1	-14.53	211.1209
21	151	130	21	5.47	29.9209

22	142	110	32	16.47	271.2609
23	124	120	4	-11.53	132.9409
24	130	130	0	-15.53	241.1809
25	151	140	11	-4.53	20.5209
26	109	108	1	-14.53	211.1209
27	130	125	5	-10.53	110.8809
28	153	143	10	-5.53	30.5809
29	111	112	-1	-16.53	273.2409
30	151	149	13	-2.53	6.4009
Total			$\sum d = 466$		$\sum(d-\bar{d})^2 = 4583.467$

X= Score before treatment D= Mean difference

Y= Score after treatment

A. Question to be answered:

Is there any difference between Triglyceride level before and after Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between Triglyceride level before and after Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d} = \Sigma d/n$

[Where $\Sigma d = 466$, $n = 30$]

$= 466/30$

$= 15.533$

The estimate of population standard deviation is given by,

$$SD = \sqrt{\Sigma (d-\bar{d})^2}/(n-1)$$

[Where $\Sigma (d-\bar{d})^2 = 4583.467$, $n = 30$]

$$= \sqrt{4583.467/29}$$

$$= 12.572$$

Standard error (S.E) = SD / $\sqrt{n}$

$$= 12.572/ \sqrt{30}$$

$$= 2.295$$

D. The test statistics is Paired t:

Critical ratio = $t = \frac{\bar{d}}{SD/\sqrt{n}}$

$$= 15.533 /2.295$$

$$= 6.767$$

E. Comparison with tabled value:

The critical ratio t follows a distribution with n-1 degrees of freedom. The tabled value at 5 % significance level is 2.045 and 1% level is 2.756 for 29 degrees of freedom. Since the calculated value 6.767 is greater than the tabled value at 5% and 1% significance level. Thus the null hypothesis is rejected.

F. Inference:

This study shows significant reduction in the triglyceride levels after Homoeopathic treatment. Therefore, this study shows that Homoeopathic constitutional treatment can revert back metabolic syndrome very effectively.

t-Test: Paired Two Sample for Means		TGL
	AFTER	*BEFORE*
Mean	127.1333333	142.6667
Variance	168.8781609	169.954
Observations	30	30
Pearson Correlation	0.533545894	
Hypothesized Mean Diffe	0	
df	29	
t Stat	6.767484187	
P(T<=t) one-tail	9.93801E-08	
t Critical one-tail	1.699127027	
P(T<=t) two-tail	1.9876E-07	
t Critical two-tail	2.045229642	

Table.10.Hypothesis testing for FBS levels

SL.NO	X	Y	d=X-Y	$d-\bar{d}$	$(d-\bar{d})^2$
1	338	281	57	37.734	1423.854756
2	135	81	54	34.734	1206.450756
3	125	100	25	5.734	32.878756
4	115	95	20	0.734	0.538756
5	130	100	30	10.734	115.218756
6	120	100	20	0.734	0.538756
7	115	95	20	0.734	0.538756
8	128	100	28	8.734	76.282756
9	125	98	27	7.734	59.814756
10	90	76	14	-5.266	27.730756
11	125	100	25	5.734	32.878756
12	120	100	20	0.734	0.538756
13	130	120	10	-9.266	85.858756
14	132	100	32	12.734	162.154756
15	130	99	31	11.734	137.686756
16	104	100	4	-15.266	233.050756
17	130	110	20	0.734	0.538756
18	359	345	14	-5.266	27.730756
19	130	100	30	10.734	115.218756
20	110	103	7	-12.266	150.454756

21	120	100	20	0.734	0.538756
22	130	100	30	10.734	115.218756
23	108	95	13	-6.266	39.262756
24	103	92	11	-8.266	68.326756
25	101	101	0	-19.266	371.178756
26	105	99	6	-13.266	175.986756
27	102	105	-3	-22.266	495.774756
28	104	101	3	-16.266	264.582756
29	128	120	8	-11.266	126.922756
30	130	128	2	-17.266	298.114756
Total			$\sum d = 578$		$\sum(d-\bar{d})^2$ =5845.86668

X= Score before treatment D= Mean difference

Y= Score after treatment

A. Question to be answered:

Is there any difference between FBS level before and after Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between FBS level before and after Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d} = \Sigma d/n$

[Where $\Sigma d = 578$, $n = 30$]

$= 578/30$

$= 19.266$

The estimate of population standard deviation is given by,

$SD = \sqrt{\Sigma (d-\bar{d})^2}/(n-1)$

[Where $\Sigma (d-\bar{d})^2 = 5845.866$, $n = 30$]

$= \sqrt{5845.866}/29$

$= 14.197$

Standard error (S.E) = SD / $\sqrt{n}$

$= 14.197/ \sqrt{30}$

$= 2.592$

D. The test statistics is Paired t:

Critical ratio = $t = \frac{\bar{d}}{SD/\sqrt{n}}$

$= 19.266 / 2.592$

$= 7.432$

E. Comparison with tabled value:

The critical ratio t follows a distribution with n-1 degrees of freedom. The tabled value at 5 % significance level is 2.045 and 1% level is 2.756 for 29 degrees of freedom. Since the calculated value 7.432 is greater than the tabled value at 5% and 1% significance level. Thus the null hypothesis is rejected.

F. Inference:

This study shows significant reduction in the FBS levels after Homoeopathic treatment. Therefore, this study shows that Homoeopathic constitutional treatment can revert back metabolic syndrome very effectively.

t-Test: Paired Two Sample for Means

	BEFORE	*AFTER*
Mean	134.0666667	114.8
Variance	3547.788506	3069.544828
Observations	30	30
Pearson Correlation	0.972079316	
Hypothesized Mean Difference	0	
Df	29	
t Stat	7.432617048	
P(T<=t) one-tail	1.71783E-08	
t Critical one-tail	1.699126996	
P(T<=t) two-tail	3.43567E-08	
t Critical two-tail	2.045229611	

Table.11.Hypothesis testing for BMI

SL.NO	X	Y	d=X-Y	$d-\bar{d}$	$(d-\bar{d})^2$
1	26.3	26	0.3	-2.09	4.3681
2	26.3	23	3.3	0.91	0.8281
3	27.1	22.4	4.7	2.31	5.3361
4	27.4	21.9	5.5	3.11	9.6721
5	27	22.6	4.4	2.01	4.0401
6	26.6	17.9	8.7	6.31	39.8161
7	29.5	26.4	3.1	0.71	0.5041
8	26.3	20.5	5.8	3.41	11.6281
9	26	22.8	3.2	0.81	0.6561
10	28.1	27.6	0.5	-1.89	3.5721
11	25	22.3	2.7	0.31	0.0961
12	25	21.4	3.6	1.21	1.4641
13	29.6	26.3	3.3	0.91	0.8281
14	29.5	26.5	3	0.61	0.3721
15	26.6	22.8	3.8	1.41	1.9881
16	27.4	26.9	0.5	-1.89	3.5721
17	29.6	26.3	3.3	0.91	0.8281
18	20	20.6	-0.6	-2.99	8.9401
19	28.1	23.6	4.5	2.11	4.4521
20	26	26	0	-2.39	5.7121

21	25.1	23	2.1	-0.29	0.0841
22	28	23.5	4.5	2.11	4.4521
23	26.8	27.1	-0.3	-2.69	7.2361
24	27.9	27.7	0.2	-2.19	4.7961
25	29.4	28.9	0.5	-1.89	3.5721
26	27.6	27.6	0	-2.39	5.7121
27	30.7	30.2	0.5	-1.89	3.5721
28	28.7	28.7	0	-2.39	5.7121
29	26.2	26	0.2	-2.19	4.7961
30	26.6	26.2	0.4	-1.99	3.9601
Total			$\sum d = 71.7$		$\sum(d-\bar{d})^2 = 152.567$

X= Score before treatment D= Mean difference

Y= Score after treatment

A. Question to be answered:

Is there any difference between FBS level before and after Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between FBS level before and after Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d} = \Sigma d/n$

[Where $\Sigma d = 578$, $n = 30$]

$= 71.7/30$

$= 2.39$

The estimate of population standard deviation is given by,

$SD = \sqrt{\Sigma (d-\bar{d})^2}/(n-1)$

[Where $\Sigma (d-\bar{d})^2 = 152.567$, $n = 30$]

$= \sqrt{152.567}/29$

$= 2.293$

Standard error (S.E) = SD / $\sqrt{n}$

$= 5.260/ \sqrt{30}$

$= 0.418$

D. The test statistics is Paired t:

Critical ratio = $t = \frac{\bar{d}}{SD/\sqrt{n}}$

$= 2.39 /0.418$

$= 5.717$

E. Comparison with tabled value:

The critical ratio t follows a distribution with n-1 degrees of freedom. The tabled value at 5 % significance level is 2.045 and 1% level is 2.756 for 29 degrees of freedom. Since the calculated value 5.717 is greater than the tabled value at 5% and 1% significance level. Thus the null hypothesis is rejected.

F. Inference:

This study shows significant reduction in the BMI after Homoeopathic treatment. Therefore, this study shows that Homoeopathic constitutional treatment can revert back metabolic syndrome very effectively.

t-Test: Paired Two Sample for Means

	BEFORE	*AFTER*
Mean	27.17586207	24.7137931
Variance	4.183325123	8.846945813
Observations	29	29
Pearson Correlation	0.636373925	
Hypothesized Mean Difference	0	
df	28	
t Stat	5.766025404	
P(T<=t) one-tail	1.72051E-06	
t Critical one-tail	1.701130908	
P(T<=t) two-tail	3.44102E-06	
t Critical two-tail	2.048407115	

Table.12.Hypothesis testing for HDL

SL.NO	X	Y	d=X-Y	$d-\bar{d}$	$(d-\bar{d})^2$
1	46	46	0	1.33	1.7689
2	39	42	-3	-1.67	2.7889
3	42	46	-4	-2.67	7.1289
4	38	39	-1	0.33	0.1089
5	58	64	-6	-4.67	21.8089
6	48	50	-2	-0.67	0.4489
7	38	44	-6	-4.67	21.8089
8	50	51	-1	0.33	0.1089
9	52	54	-2	-0.67	0.4489
10	44	45	-1	0.33	0.1089
11	39	46	-7	-5.67	32.1489
12	60	60	0	1.33	1.7689
13	36	36	0	1.33	1.7689
14	49	46	3	4.33	18.7489
15	53	53	0	1.33	1.7689
16	60	64	-4	-2.67	7.1289
17	39	39	0	1.33	1.7689
18	48	48	0	1.33	1.7689
19	55	58	-3	-1.67	2.7889
20	38	38	0	1.33	1.7689

21	58	54	4	5.33	28.4089
22	38	38	0	1.33	1.7689
23	56	56	0	1.33	1.7689
24	39	40	-1	0.33	0.1089
25	44	48	-4	-2.67	7.1289
26	37	39	-2	-0.67	0.4489
27	58	54	4	5.33	28.4089
28	60	63	-3	-1.67	2.7889
29	54	54	0	1.33	1.7689
30	39	40	-1	0.33	0.1089
Total			$\sum d = -40$		$\sum(d-\bar{d})^2 = 200.667$

X= Score before treatment D= Mean difference

Y= Score after treatment

A. Question to be answered:

Is there any difference between HDL level before and after Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between HDL level before and after Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d} = \Sigma d/n$

[Where $\Sigma d = -40$, $n = 30$]

$= -40/30$

$= -1.33$

The estimate of population standard deviation is given by,

$SD = \sqrt{\Sigma (d-\bar{d})^2}/(n-1)$

[Where $\Sigma (d-\bar{d})^2 = 200.667$, $n = 30$]

$= \sqrt{200.667/29}$

$= 2.630$

Standard error (S.E) = SD / $\sqrt{n}$

$= 2.630/ \sqrt{30}$

$= 0.480$

D. The test statistics is Paired t:

Critical ratio = $t = \frac{\bar{d}}{SD/\sqrt{n}}$

$= -1.33 / 0.480$

$= -2.770$

E. Comparison with tabled value:

The critical ratio t follows a distribution with n-1 degrees of freedom. The tabled value at 5 % significance level is 2.045 and 1% level is 2.756 for 29 degrees of freedom. Since the calculated value -2.770 is greater than the tabled value at 5% and 1% significance level. Thus the null hypothesis is rejected.

F. Inference:

This study shows significant reduction in the HDL levels after Homoeopathic treatment. Therefore, this study shows that Homoeopathic constitutional treatment can revert back metabolic syndrome very effectively.

t-Test: Paired Two Sample for Means -HDL		
	AFTER	*BEFORE*
Mean	48.5	47.16666667
Variance	69.36206897	70.62643678
Observations	30	30
Pearson Correlation	0.950609429	
Hypothesized Mean Difference	0	
df	29	
t Stat	2.776263892	
P(T<=t) one-tail	0.004765588	
t Critical one-tail	1.699127027	
P(T<=t) two-tail	0.009531177	
t Critical two-tail	2.045229642	

Table.13. Hypothesis testing for scoring based on all the criteria

SL.NO	X	Y	d=X-Y	$d-\bar{d}$	$(d-\bar{d})^2$
1	5	4	1	-1.466	2.149156
2	4	0	4	1.534	2.353156
3	4	0	4	1.534	2.353156
4	3	1	2	-0.466	0.217156
5	4	0	4	1.534	2.353156
6	3	0	3	0.534	0.285156
7	3	1	2	-0.466	0.217156
8	4	0	4	1.534	2.353156
9	4	0	4	1.534	2.353156
10	4	0	4	1.534	2.353156
11	4	0	4	1.534	2.353156
12	3	0	3	0.534	0.285156
13	4	3	1	-1.466	2.149156
14	6	2	4	1.534	2.353156
15	6	0	6	3.534	12.489156
16	3	1	2	-0.466	0.217156
17	4	3	1	-1.466	2.149156
18	7	5	2	-0.466	0.217156
19	4	0	4	1.534	2.353156
20	3	3	0	-2.466	6.081156

21	3	0	3	0.534	0.285156
22	4	1	3	0.534	0.285156
23	4	3	1	-1.466	2.149156
24	3	1	2	-0.466	0.217156
25	3	2	1	-1.466	2.149156
26	3	2	1	-1.466	2.149156
27	5	4	1	-1.466	2.149156
28	3	2	1	-1.466	2.149156
29	5	4	1	-1.466	2.149156
30	4	3	1	-1.466	2.149156
Total			$\sum d = 74$		$\sum(d-\bar{d})^2 = 63.466$

X= Score before treatment D= Mean difference

Y= Score after treatment

A. Question to be answered:

Is there any difference between the scoring before and after Homoeopathic treatment?

B. Null Hypothesis:

There is no difference between scoring before and after Homoeopathic treatment.

C. Standard error of the mean differences:

The mean of the differences, $\bar{d} = \Sigma d/n$

[Where $\Sigma d = 74$, $n = 30$]

$= 74/30$

= 2.466

The estimate of population standard deviation is given by,

$SD = \sqrt{\Sigma (d-\bar{d})^2}/(n-1)$

[Where $\Sigma (d-\bar{d})^2$ =63.466, n = 30]

$= \sqrt{63.466/29}$

= 1.479

Standard error (S.E) = SD / √n

= 1.479/ √30

= 0.399

D. The test statistics is Paired t:

Critical ratio = $t = \frac{\bar{d}}{SD/\sqrt{n}}$

= 2.466 /0.399

= 6.180

E. Comparison with tabled value:

The critical ratio t follows a distribution with n-1 degrees of freedom. The tabled value at 5 % significance level is 2.045 and 1% level is 2.756 for 29 degrees of freedom. Since the calculated value 6.180 is greater than the tabled value at 5% and 1% significance level. Thus the null hypothesis is rejected.

F. Inference:

This study shows significant reduction in the scoring after Homoeopathic treatment. Therefore, this study shows that Homoeopathic constitutional treatment can revert back metabolic syndrome very effectively.

t-Test: Paired Two Sample for Means

	Before	After
Mean	3.966666667	1.5
Variance	1.067816092	2.465517241
Observations	30	30
Pearson Correlation	0.414413945	
Hypothesized Mean Difference	0	
df	29	
t Stat	9.132659097	
P(T<=t) one-tail	2.47952E-10	
t Critical one-tail	1.699126996	
P(T<=t) two-tail	4.95904E-10	
t Critical two-tail	2.045229611	

6.0 DISCUSSION

The study was conducted on the patients with metabolic syndrome from Sarada Krishna Homoeopathic Medical College Out Patient Department, In Patient Department, rural health centers and school health programme. to compare the efficacy of Homoeopathic medicine and Conventional medicine in pain management after tooth extraction to know the effect of homoeopathic constitutional remedies in treating metabolic syndrome and to understand the management of triglycerides level with homoeopathic medicine.

A total of 30 cases were selected as per the inclusion criteria and details of cases were recorded in standardized acute case record. Patients between the age group of 8–18 years were selected. The cases were diagnosed based on ATP III criteria . The symptoms were analysed and the homoeopathic constitutional medicine was prescribed. The cases was studied for a period of 10-12 months.Student t test was applied for analysing the effectiveness of homoeopathic constitutional medicine in the management of metabolic syndrome.The improvement of the cases assessed on the basis of scoring chart.

Based on the analysis from 30 cases of metabolic syndrome which i have included in my study, following observations are made.

Out of 30 cases, most number of patients were in the age group of 13- 14years and 9 patients were seen between the 8-10 years age group. Males are more affected than females.From the 30 cases 18 patients showed the totality of Calcarea carb, 4 patients showed totality of Antimonium crudum, 3 patients were given the remedy Pulsatilla.

2 patients each were given Silicea and Ferrum met. 1 patient was given the remedy Baryta carb. Calcarea carb. was the medicine which came as constitutional medicine for most of the children with metabolic syndrome and it is effective also.Out of 30 cases 20 cases have marked improvement, 9 cases have mild improvement and 1 case have no improvement.The study shows that Homoeopathic constitutional treatment is effective in the management of metabolic syndrome and in the manegement of triglycerides.

6.1 LIMITATIONS

1. Number of samples used in the study is very small. Therefore generalization of the result and inferences of the study need to be done cautiously.
2. Selection of the cases were very much difficult since many of the cases were irregular for reporting and some of them even dropped out.
3. There was no control group since the sample size was small.
4. In some cases necessary information was lacking and the study was based on available data.
5. It felt difficulty in advising the patients to get the TRIGLYCERIDE,HDL & FBS tested as it is an expensive test.

6.2 RECOMMENDATIONS

- Bigger sample size with extended time of research would provide better results.
- It was better, if control (placebo) group would have been kept simultaneously to verify the effectiveness of treatment.
- Further study has to be conducted to know the duration of action of medicines.

7.0 CONCLUSION

The present study on management of metabolic syndrome among the school going children using Homoeopathic constitutional medicine was conducted to know the effect of Homoeopathic constitutional remedies in treating metabolic syndrome and to understand the management of triglycerides level with Homoeopathic medicine.The following conclusions were drawn from the study of 30 case samples:

The study was conducted to the age group between 8 - 18 years and and most affected age group is 13 - 14 years and males are more affected than females. The constitutional medicines given are Calcarea carb., Ferrum met., Pulsatilla, Silicea, Baryta carb., and Antimonium crudum.From the above list of medicines, Calcarea carb. was the medicine which came as constitutional medicine for most of the children with metabolic syndrome and it is effective also. From the study we can conclude that constitutional medicines are effective in the management of metabolic syndrome and in the management of triglyceride level.

8.0 SUMMARY

A sample of 30 cases of metabolic syndrome among the school going children is collected from Sarada Krishna Homoeopathic Medical College OPD, IPD, RHC, and school health programme. Each case was taken in a detailed manner and recorded in SKHMC Standard case record format. Totality was erected after analysis and evaluation . Then repertorization is done and with reference to Materia Medica and Organon of medicine and signific constitutional remedy was given. And improved is noted in sum of scores before and after treatment. The cases was studied for a period of 10-12 months.Student t test was applied for analysing the effectiveness of homoeopathic constitutional medicine in the management of metabolic syndrome.

The effectiveness of constitutional medicine From the analysis of values of BMI, triglyceride level, HDL, FBS and B.P. before and after the treatment it is found that homoeopathic constitutional medicines are effective in managing metabolic syndrome and in the management of triglyceride level.

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APPENDIX I – GLOSSARY

1	APHORISM	It is a terse saying, expressing a general truth, principle or exact observation, and spoken or written in a laconic and memorable form. Aphorism literally means a "distinction" or "definition"
2	POTENCY	The power is derived by the grades of medicinal power as developed by the process of dynamization. Potency means dilution of energy.
3	MIASM	A noxious influence, Miasm is defined by Hahnemann is the infectious principle, or virus, which, when taken into the organism, may set up a specific disease.
4	CONSTITUTION	It is the genotypic inheritance of an individual, the physical make up of his body, including its functional ability, metabolic activity, reaction to stimuli and resistance to infection.
5	CONSTITUTIONAL TREATMENT	Method of therapeutics unique to Homoeopathy. Constitutional medicine is capable of correcting the inherent and acquired defects in the personality.
6	OBESITY	Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. It is defined by body mass index (BMI)
7	METABOLIC SYNDROME	Metabolic syndrome is a collection of heart disease risk factors that increase your chance of developing heart disease, stroke, and diabetes. The condition is also known by other names including Syndrome X, insulin resistance syndrome, and dysmetabolic syndrome.

APPENDIX II

'Case Records Are Our Valuable Asset'

SARADA KRISHNA CONFIDENTIAL

HOMOEOPATHIC MEDICAL COLLEGE HOSPITAL

KULASEKHARAM, KANNIYAKUMARI DIST, TAMIL NADU- 629 161

CHRONIC CASE RECORD

Date: …….. Unit…….. Regn. No…….

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1. PERSONAL DATA

Name of Patient:……

Age :…….. yrs Sex : M/F/T Religion :…… Nationality :……

Name of Father / Spouse / Guardian / son / Daughter ……

Marital status : Single / Married . Widow (er) / Divorcee / Live-relation

Occupation :……..... Income per capita :……

Family size (members living together) :……

Diet : Veg. / Non veg. / Mixed

Address :……...

……

……..

Phone (Office) ……..… Residence ……

Mobile …… e-mail ……...

Referred to by:…….

FINAL DIAGNOSIS :

Homoeopathic	
Disease	

RESULT:	Cured	Relieved	Referred	Otherwise	Expired

Attending Physician …….....

2. Initial presentation of illness

PATIENT'S NARRATION (In the very expression used by him / her)	PHYSICIAN'S INTERROGATION (Details regarding symptoms narrated)	PHYSICIAN'S OBSERVATON

3. Presenting Complaint (s)

(patient's narration of ailments chronologically with duration and intensity)

Location (tissues, organs, systems extension & duration direction & frequency)	Sensation & Pathology	Modalities (>,<) & A/F (=)	Concomitants, if any
A. Chief Complaints(s) B. Associated complaints(s) (In chronological order with duration)			

3. **H/o Presenting Illness :**
   (origin, duration and progression of each symptom in chronological order along with its mode of onset, probable cause (s), details of treatment and their outcome)

4. **H/o Previous Illness**

No.	Age/Year	Illness, trauma, fright, burns(s), drug allergy(ies), operation(s), exposure(s), inoculation, vaccination(s), serum, steroids, hormone therapy, antibiotics, analgesics, etc	Treatment adopted	Outcome

5. H/o FAMILY ILLNESS

6. PERSONAL HISTORY:

A. LIFE SITUATION

Place of birth :
Religion :
Education : Occupation :
Socio-economic status :
Nutritional status :
Marital status :
Family status :

B. HABTS & HOBBIES:

Food :
Addictions :
Sleep :
Artistic :
Games / Sports :

C. DOMESTIC RELATIONS:

With family members :
With other relatives :
With neighbours / friends / colleagues :

D. SEXUAL RELATIONS:

Pre-marital:
Marital:
Extra Marital:

7. **LIFE SPACE INVESTIGATIONS** (as perceived by the 'Interrogator/ Physician)

   (birth and early development (milestone), behaviour during childhood, education, adolescence & psychosexual history, occupational history, mental history, children, geriatrics history & travel history)

8. GYNAECOLOGICAL HISTORY

A. Menses

B. Previous History

C. Climacteric

D. Abnormal Vaginal Discharges

E. H/o gynaecological surgeries : Yes/No
(If yes state the reason)

9. OBSTETRICAL HISTORY

A. Previous Pregnancies including abortion:

B. Contraceptive method(s) adopted:

C. Present Pregnancy:

D. Physical Examination – Gynaecological / Obstetrical

10. GENERAL SYMPTOMS

A. Physicals

i. Functional

Appetite:

Thirst:

Sleep:

ii. Eliminations

Stool:

Urine:

Sweat:

iii. Reactions to

iv. Constitutional

B. Mental General

i. Will & emotions including motivation

ii. Understanding and intellect

iii. Memory

11. PHYSICAL EXAMINATION

A. General Examination

- Conscious/unconscious
- General appearance
- General built
- Ht : cm Wt : Kg BMI :
- Anaemia
- Jaundice
- Cyanosis
- Oedema
- Skin
- Nails
- Gait
- Lymphadenopathy
- Blood pressure Pulse
- Temp Resp. rate
- Others

B. Systemic Examination

i. Respiratory system

ii. Cardiovascular system

iii. Gastro Intestinal system

iv. Urogenital system

v. Skin and Glands

vi. Musculo-skeletal system

vii. Central Nervous system

viii. Endocrine

ix. Eye & ENT

x. Others

C. REGIONALS

12. LABORATORY INVESTIGATIONS & FINDING AND SURGICAL INVESTIGATIONS

(urine, stool, blood, sputum, imaging, ECG, and other investigations)

13. DIAGNOSIS

A. Provisional Diagnosis

B. Differential Diagnosis

C. **Final Diagnosis** (Disease)

14. DATA PROCESSING

A. Analysis of case

Basic / Common / Pathognomonic Symptoms	Determinative / Uncommon / Non-pathognomonic Symptoms

B. Evaluation of Symptoms

C. Miasmatic Analysis

PSORA	SYCOTIC	SYPHILIS

Miasmatic Diagnosis :	

D. Totality of Symptoms

E. **Homoeopathic Diagnosis** (Hahnemannian Classification)

15. SELECTION OF MEDICINE

A. Non Repertorial Approach

B. Repertorial Approach

16. SELECTION OF POTENCY AND DOSE

17. PRESCRIPTION

18. GENERAL MANAGEMENT INCLUDING AUXILLARU MEASURES

A. General/Surgical/Accessory

B. Restrictions (diet, regimen etc)

Disease	Medicinal

19. PROGRESS & FOLLOW UP

Date	Symptom(s) changes	Inference	Prescription

Appendix - III

ASSESSMENT CRITERIA FOR METABOLIC SYNDROME

BEFORE								
SL.NO	OP NO.	FBS	HDL	TGL	BMI	SBP	DBP	TOTAL
1	4154/18	3	0	1	1	0	0	5
2	46	2	1	0	1	0	0	4
3	37	2	0	1	1	0	0	4
4	56	1	1	0	1	0	0	3
5	24	2	0	1	1	0	0	4
6	71	1	0	1	1	0	0	3
7	129	1	1	0	1	0	0	3
8	82	2	0	1	1	0	0	4
9	66	2	0	1	1	0	0	4
10	932/17	0	0	1	1	1	1	4
11	51	2	1	0	1	0	0	4
12	100	1	0	1	1	0	0	3
13	73	2	1	0	1	0	0	4
14	4	2	0	1	1	1	1	6
15	25	2	0	1	1	1	1	6
16	33	1	0	1	1	0	0	3
17	36	2	1	0	1	0	0	4
18	945/19	3	0	1	1	1	1	7
19	107	2	0	1	1	0	0	4
20	98	1	1	0	1	0	0	3
21	29	1	0	1	1	0	0	3
22	88	2	1	0	1	0	0	4
23	108	1	0	0	1	1	1	4
24	121	1	1	0	1	0	0	3
25	91	1	0	1	1	0	0	3
26	45	1	1	0	1	0	0	3
27	70	1	0	0	2	1	1	5
28	87	1	0	1	1	0	0	3
29	136	2	0	0	1	1	1	5
30	133	2	1	0	1	0	0	4

AFTER								
SL.NO	OP NO.	FBS	HDL	TGL	BMI	SBP	DBP	TOTAL
1	4154/18	3	0	0	1	0	0	4
2	46	0	0	0	0	0	0	0
3	37	0	0	0	0	0	0	0
4	56	0	1	0	0	0	0	1
5	24	0	0	0	0	0	0	0
6	71	0	0	0	0	0	0	0
7	129	0	0	0	1	0	0	1
8	82	0	0	0	0	0	0	0
9	66	0	0	0	0	0	0	0
10	932/17	0	0	0	1	0	0	0
11	51	0	0	0	0	0	0	0
12	100	0	0	0	0	0	0	0
13	73	1	1	0	1	0	0	3
14	4	0	0	0	1	1	0	2
15	25	0	0	0	0	0	0	0
16	33	0	0	0	1	0	0	1
17	36	1	1	0	1	0	0	3
18	945/19	3	0	0	0	1	1	5
19	107	0	0	0	0	0	0	0
20	98	1	1	0	1	0	0	3
21	29	0	0	0	0	0	0	0
22	88	0	1	0	0	0	0	1
23	108	0	0	0	1	1	1	3
24	121	0	0	0	1	0	0	1
25	91	1	0	0	1	0	0	2
26	45	0	1	0	1	0	0	2
27	70	1	0	0	2	1	0	4
28	87	1	0	0	1	0	0	2
29	136	1	0	0	1	1	1	4
30	133	2	0	0	1	0	0	3

APPENDIX IV

FORM – 4: CONSENT FORM (A)

INFORMATION FOR PARTICIPANTS OF THE STUDY

Title of my study is "A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ONATP III CRITERIA IN SCHOOL GOING CHILDREN". The purpose of my study is (1) to know the effect of Homoeopathic constitutional remedies in treating metabolic syndrome (2) to understand the management of triglycerides level with Homoeopathic medicines. Duration of my study is from July 2017 – January 2019.

The procedures include selection of 30 cases of metabolic syndrome among school going children are collected from OPD, IPD, peripheral centers and school health programme of Sarada Krishna Homoeopathic Medical College Hospital. The case will be analysed and evaluated. It is repertorised and a well selected remedy will be prescribed after referring the Materia Medica. The repetition of doses will be done based on the Homoeopathic principles. Assessment will be done once in a week or two weeks and changes will be recorded. The HbA_{1c} value will be assessed before starting the treatment and the assessment is done 3 months later.

The benefits to the subject or others, reasonably expected from research are (1) The participants are investigated to find out whether he/she is having metabolic syndrome. (2) If the participant is identified to have metabolic syndrome he/she will be given awareness about the risk factors of it by which they can reduce/ control the progression of their disease. (3) Thus study is a benefit not only to the participant but also

to the society as a whole. The records are maintained highly confidential. Only the investigator has the access to the subject's medical records. Participant's identity will never be disclosed at any time, during or after the study period or during publication of the research. Securely store data documents in locked locations and Encrypt identifiable computerized data. All information revealed by patient will be kept as strictly confidential. Free treatment for research related injury is guaranteed. Compensation of the participants not only disability or death resulting from such injury but also for unforeseeable risks is provided, in case situation arises.

Contact for trial related queries, rights of subjects and in the event of any injury.

INVESTIGATOR

Dr. Nithin. R. M, P.G. Scholar,

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Sarada Krishna Homoeopathic Medical College,

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GUIDE

Dr. T. Ajayan

Professor & Head

Department of Practice of Medicine,

Sarada Krishna Homoeopathic Medical College,

Kulasekharam, Mobile no: 9442365199.

There will not be any anticipated prorated payment to the subject for participating in the trial. The responsibilities of the participants in the trial are they must disclose all about the complaints. Participants must strictly stick on to the scheduled Diet, Regimen and Medicine.

The participation is voluntary, that the subject can withdraw from the study at any time and that refusal to participate will not involve any penalty or loss of benefits to which the subject is otherwise entitled.

FORM– 4 A

CONSENT FORM (B)

Informed Consent form to participate in a clinical trial

Study Title: "A STUDY ON THE ROLE OF CONSTITUTIONAL MEDICINE IN THE MANAGEMENT OF METABOLIC SYNDROME BASED ONATP III CRITERIA IN SCHOOL GOING CHILDREN"

Study Number: Subject's Initials_____ Subject's Name _____ Date of birth/Age: _____

Please initial

Box (Subject)

i. I confirm that I have read and understood the information sheet dated July 2017 for the above study and have had the opportunity to ask question. [ ]

ii. I understood that my participation in the study is voluntary and that I am free to withdraw at any time without giving any reason. Without my medical [ ]

care or legal rights being affected.

iii. I understand that the sponsor of the clinical trial, others working on the sponsor's [ ]

behalf the Ethics Committee and the regulatory authorities will not need my permission to look at my health records both in respect of the current study and further research that may be conducted in relation to it, even if I withdraw from the trial. I agree to this access. However, I understand that my identity will not be revealed in any information released to third parties or published.

iv. I agree not to restrict the use of any data or result that arise from this study [ ]

provided such a use only for scientific purpose(s)

v. I agree to take part in the above study.

Signature (or Thumb impression of the subject/legally acceptable)

Representative: _____

Date _____/_____/_____

Signatory's Name: _____

Signature of the Investigator: _____

Study Investigator's Name: Dr. Nithin. R. M

Signature of the Witness_____ Date: _____/_____/_____

Signature of the Witness_____ Date: _____/_____/_____

Appendix - V

CASE OF METABOLIC SYNDROME WITH CONSTITUTIONAL TREATMENT

OP NO:4154/18

NAME: Master.X

AGE/GENDER:15 years/male

ADDRESS: Aramannam, Cherruppaloor

C/O: Mr. Jestin raj

DATE:13/06/2018

PRESENTING COMPLAINTS

LOCATION	SENSATION	MODALITIES	CONCOMITANTS
General Since 3 yrs	-Diabetes mellitus -appetite increased -thirst increased -frequency of urination increased		

HISTORY OF PRESENTING COMPLAINTS

The patient is diabetic since 3 yrs. Now is present with increased appettite and thirst. And he is having increased frequency of urination. For that he took allopathy but temporary relieved.

HISTORY OF PREVIOUS ILLNESS

1. At 12 years of age - hyperglycemia - Allopathy - under control
2. Since 3 years recurrent attack of boils - Allopathy -temporary relieved
3. At 1 year of age- chickenpox - traditional- relieved

FAMILY HISTORY

Grandmother - diabetes mellitus

Grandfather - stroke

PERSONAL HISTORY

Place of birth - kavasthalam

Place of dwellings: cherruppaloor

Father and mother: Alive

Sibling: 1

Family: nuclear

HABITS AND HOBBIES:

Non-vegetarian.

Sleep: good

LIFE SPACE INVESTIGATION:

Ante-natal history: He is the first child of his mother. He is born with cessarian delivery due do decrease amniotic fluid. His mother got conceived after 2 months of her marriage. She had very stress. Due to overwork^{++}. she feel lonely at that time of pregnancy. His father had some financial problem at that time of marriage.

Post-natel history: He is not crying at that time of birth. He is having a sucking reflex . he did not take a milk from moher's breast. After 3 days of birth he is shifted to hospital due to hearing of rattling sound. He is under incubator. He take a breast milk until 1 month through the tube & etc. After she stop the breast feeding.

Milestone: all milestones are attained delayed speech- delayed.(after 2 yrs).

Immunisation history: all immunisation is taken.

Birth weight -2.4 kg

Fetal movements- slow

Presentation- normal.

MENTAL GENERALS

Aversion to studies

Grief about loneniness

Desire- company

Restless

Preception good

PHYSICAL GENARALS

Appetite: increased

Thirst: increased

Sleep: good

Stool: regular

Urine: increased in frequency

Sweat: increased over whole body.

REACTION TO

Aversion to hot climate

Desires fanning.

Aversion covering.

Desire cold bathing

Desire cold drinks

Desire chicken

THERMAL: hot

REGIONALS;

Salivation increased

Tongue clean & moist

Unhealthy skin

PHYSICAL EXAMINATION

Conscious

Fair complexion

Obese

Anemia:No pallor

Jaundice:Not icteric

Clubbing:Nil

Cyanosis:Nil

Oedema:Nil

Lymphadenopathy:Nil

Steady gait

Height:140.5cm

Weight:51.9kg

BMI:26.3kg/m^2

Pulse:92/minute

B.P: 124/72mmHg

Respiratory rate:17/minute

On examination normal findings on systemic examination

LAB INVESTIGATION

FBF:338mg/dl

Triglycerides:151mg/dl

HDL : 46mg/dl

Totality of symptoms:

D- Company

Religious

Fearless

Did not know what he does next minutes.

D-Music

Easily angered. Throw things & beat others

D-Fanning

A- covering

D- cold bathing ,cold food & drinks

D- chicken

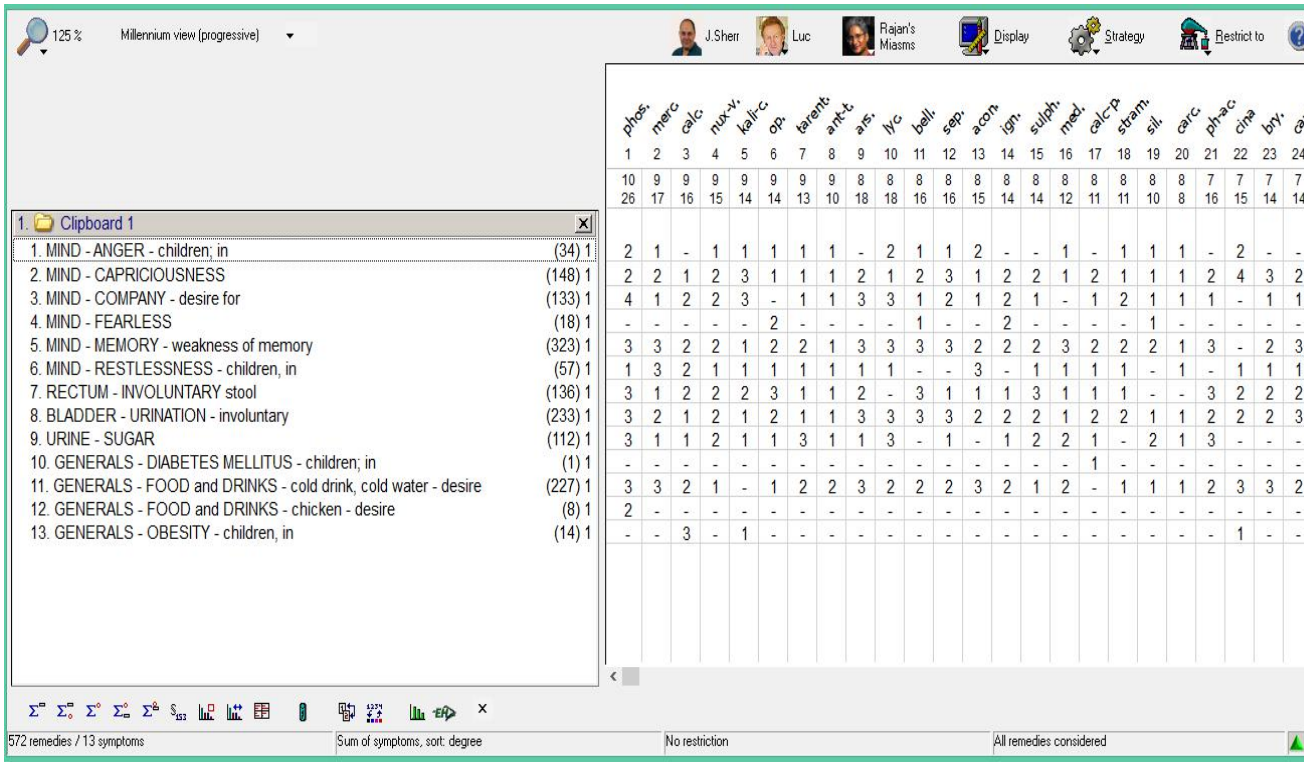
Appetite- increase

Thirst - increase

Urine - increase frequency.

Diabetes mellitus

REPERTORIAL RESULT:



PRESCRIPTION:

CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly

MANAGEMENT

Minimize physical inactivity

Daily moderate exercise at least 30 minutes/day

Dietary control]

Eat healthy diet with lots of fruits and vegetables,lean protein,whole grains, and low fat diary

FOLLOW UP

DATE	FOLLOW UP	PRESCRIPTION
16/6/2018	Weakness present Known Diabetes mellitus -appetite increased -thirst increased -frequency of urination increased	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
26/6/2018	Diabetes mellitus -appetite increased -thirst normal -increased frequency of urination persisting Overweight BP:120/80mmHg	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
17/7/2018	Diabetes mellitus -appetite increased -thirst normal -frequency of urination increased Sweat increased	SAC LAC/1 DOSE

	RBS:380mg/dl	
1/8/2018	Itching present in the body Generals:good	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
14/8/2018	Itching slightly feels better Increased frequency of urination present Other generals good	SAC LAC/1 DOSE
8/9/2018	FBS-301mg/dl Weakness present Generals:good	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
22/9/2018	FBS:263mg/dl Weakness relieved Generals are good	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
6/10/2018	FBS:308mg/dl Weight:51.7kg thirst increased	SAC LAC/1 DOSE
13/11/2018	FBS:211mg/dl Weight:51.8kg Geanerals good	SAC LAC/1 DOSE
11/12/2018	Sweat:increased	SAC LAC/1 DOSE

	thirst increased Generals good	
5/1/2019	RBS:353mg/dl Sweat increased Increased frequency of urination	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
5/2/2019	FBS:281mg/dl Triglyceride:149mg/dl HDL: 46mg/dl Weight:51.8kg	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
5/3/2019	RBS:336mg/dl Sweat:increased Increased frequency of urination. Itching over the body present Weight:51.4kg	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly
15/3/2019	Itching slightly feels better Generals good FBS:	CALC CARB 30/ 1 dose in10 ml aqua 10gtt 3 hourly

Appendix VI

MASTER CHART

Sl. no	OP No.	Age in yrs	sex	Before								After								Medicine
				Ht. in Cm	Wt. In Kg	W.C in Cm	BMI in kg/m^2	FBS in mg/dl	TGL in mg/dl	HDL in mg/dl	B.P in mm Hg	Ht. in Cm	Wt. in Kg	W.C in Cm	BMI in kg/m^2	FBS in mg/dl	TGL in mg/dl	HDL in mg/dl	B.P in mmHg	
1	4154/18	15	M	140.5	51.9	70	26.3	338	151	46	124/72	140.5	51.4	58	26	281	149	46	118/80	CALC. CARB .30
2	46	8	F	135	48	69	26.3	135	140	39	118/68	135.5	42	61	23	81	135	42	110/72	ANTIM CRUDE 200
3	37	9	F	133	48	68.9	27.1	125	151	42	120/70	133.8	40	59.8SS	22.4	100	110	46	106/74	FERR MET 200
4	56	8	M	132	47.8	69	27.4	115	125	38	114/76	132.2	38.2	61.56	21.9	95	110	39	114/76	FERR MET 200
5	24	8	F	135	49	73	27	130	151	58	116/68	136.2	42	65	22.6	100	130	64	116/68	CALC. CARB . 200
6	71	8	M	134	47.8	68.4	26.6	120	155	48	122/72	134.8	32.5	59.8	17.9	100	134	50	120/72	CALC. CARB . 200
7	129	9	F	136	54.5	68.8	29.5	115	135	38	116/70	136.8	48.8	61.49	26.4	95	120	44	116/70	PULSATILLA 1M
8	82	9	M	135	48	69	26.3	128	151	50	110/74	136	38	60	20.5	100	120	51	112/74	CALC.CARB. 1M
9	66	10	M	140	50	65	26	125	151	52	102/78	140.6	45	60	22.8	98	120	54	114/70	CALC. CARB . 200
10	932/17	17	F	168	79.2	92	28.1	90	154	44	138/ 98	168	78	90	27.6	76	152	45	120/80	SILICEA 0/1

11	51	10	F	142	50.5	63.84	25	125	145	39	110/80	142.5	45.3	58	22.3	100	110	46	110/80	ANTIM CRUDE 200
12	100	11	M	143	49.8	58	25	120	152	60	108/76	143.5	44	53	21.4	100	125	60	108/76	CALC. CARB . 200
13	73	11	F	140	58	58.2	29.6	130	146	36	92/64	140.5	52	54.8	26.3	120	135	36	102/74	CALC. CARB. 200
14	04	12	M	145	62	70	29.5	132	150	49	132/86	145.5	56	62	26.5	100	135	46	124/78	PULSAT ILLA 200
15	25	12	M	145	56	70	26.6	130	150	53	134/86	145.2	48	58	22.8	99	110	53	114/70	ANTIM CRUDE 200
16	33	12	M	148	60	68	27.4	104	153	60	102/72	148	59	66	26.9	100	138	64	106/70	CALC. CARB . 200
17	36	13	M	140	58	65	29.6	130	145	39	96/70	140.5	52	60	26.3	110	120	39	96/70	ANTIM CRUDE 200
18	945/19	18	M	175	62	72	20	359	153	48	136/90	175	63	70	20.6	345	150	48	132/86	SILICEA 0/1
19	107	13	M	145	59	70	28.1	130	152	55	112/68	145.6	50	63	23.6	100	138	58	120/78	PULSAT ILLA 200
20	98	13	M	157	64	62	26	110	124	38	106/70	157	64	62	26	103	123	38	116/70	CALC. CARB . 200
21	29	13	F	144	52	62	25.1	120	151	58	110/76	144.5	48	60	23	100	130	54	110/76	CALC. CARB . 200
22	88	13	M	144	58	63	28	130	142	38	116/74	144.7	49	58	23.5	100	110	38	118/72	CALC. CARB . 200
23	108	13	M	145	56.4	70	26.8	108	124	56	138/92	145	57	70	27.1	95	120	56	130/80	BARYT

																			A CARB 200
24	121	11	M	133	49.3	60	27.9	103	130	39	110/68	133	49	60	27.7	92	130	40	110/72	CALC. CARB . 200
25	91	11	M	144	61	70	29.4	101	151	44	108/78	144	60	70	28.9	101	140	48	108/78	CALC. CARB . 200
26	45	13	M	167	77	68	27.6	105	109	37	98/70	167	77	68	27.6	99	108	39	100/70	CALC. CARB . 200
27	70	13	F	150	69	68	30.7	102	130	58	136/88	150	68	69	30.2	105	125	54	130/78	CALC. CARB . 200
28	87	13	F	155	69	65	28.7	104	153	60	110/70	155	69	64.6	28.7	101	143	63	106/70	CALC. CARB . 200
29	136	13	M	167	73	76	26.2	128	111	54	132/90	167	72.5	72	26	120	112	54	130/84	CALC. CARB . 200
30	133	13	M	168	75	70	26.6	130	145	39	100/68	168	74	70	26.2	128	132	40	104/72	CALC. CARB . 200